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The Late Colonel Woodbine Parish

A WIDE circle of friends both here and in South America will deeply regret the sudden passing on May 11 of Lt.-Colonel Woodbine Parish who was intimately connected with Argentine railways and industry. As a grandson of the famous Sir Woodbine Parish, the first British Consul-General at Buenos Aires, who succeeded in obtaining in 1825 for Great Britain the first commercial treaty ever made by Argentina with any nation, and a son of Mr. Frank Parish, who also represented his country at Buenos Aires at a later period, Colonel Parish was early brought into intimate relations with railways in Argentina, Brazil, and Uruguay. This close relationship he continued to foster in every possible way by means of frequent visits to South America and other social contacts. The founder of the Argentine Club in London, he succeeded the late Lord Faringdon as President in 1934. When Argentine Independence Day was commemorated on May 25, 1925, at the annual dinner of the Argentine Club, it naturally fell to Colonel Parish to propose the toast "Amity and Commerce" in a speech describing the rapid development of Argentina by railways mainly built by British engineers and British capital. He was one of the original directors of the Buenos Ayres Western Railway Limited, and in 1906 joined the boards of the Buenos Ayres Great Southern and Central Uruguay Railways, having been since 1900 also a Director of the Entre Rios and Great Western of Brazil Railways.

Sir Ralph Wedgwood's Broadcast on "Transport"

Sir Ralph Wedgwood, Chief General Manager, L.N.E.R., in one of the rare appearances of a railway officer before the microphone, contributed last week to a series of B.B.C. transport talks for the man in the street. He dealt, *inter alia*, with some of the considerations affecting the adoption of electric traction on main line and suburban railways, and said that suburban electrification, dependent on the multiple-unit train, and not the electric locomotive, was a proved success, where the passenger traffic was heavy and the goods traffic light. Whereas suburban electrification justified itself, however, by the more intensive service it could give and the increased revenue it earned thereby, main-line electrification had to justify itself as a business proposition mainly on the economies it brought, and as the smaller the scheme so the smaller in proportion to capital expended were the probable economies, an experiment to be successful had to be made on a larger scale or not at all. Respecting the carriage of coal, Sir Ralph said that the British railways carried 190 million tons a year out of about 240 million tons produced, but the length of haul averaged only 44 miles compared with 324 miles in America and 200 miles in India.

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The Week's Traffics

Comparisons of last week's receipts of the four main-line railways with those for the 19th week of 1937 do not give a real indication of the traffic position, because the conditions last week were normal, and in the 1937 week the figures were affected by the Coronation, the Whitsun holiday (up to Sunday midnight on the L.M.S.R., G.W.R., and Southern, but only to Saturday midnight on the L.N.E.R.), and the London bus strike. Passenger receipts for the past week are, of course, heavily down in comparison with the 1937 week, but are £12,000 better than those for the corresponding normal week in 1936. Merchandise earnings for the past week are up £105,000 in comparison with the 1937 week, but are £71,500 lower than those for the 1936 week. Coal shows a net improvement of £20,000 over the 19th week of 1937 and one of £40,500 over the 1936 week.

	19th Week				Year to date	
	Pass., &c.	Goods, &c.	Coal, &c.	Total	Inc. or Dec.	
	£	£	£	£	£	%
L.M.S.R. ..	− 223,000	+ 58,000	+ 17,000	− 148,000	− 310,000	− 1·36
L.N.E.R. ..	− 118,000	+ 27,000	+ 2,000	− 89,000	− 115,000	− 0·69
G.W.R. ..	− 100,000	+ 14,000	− 1,000	− 87,000	− 55,000	− 0·59
S.R.	− 134,000	+ 6,000	+ 2,000	− 126,000	− 16,000	− 0·23

London Transport receipts for the past week amounted to £573,900, an increase of £129,000, and the aggregate for the 46 weeks to date is £25,880,900, an improvement of £369,000.

* * * *

Mobilising Knowledge

Sir Josiah Stamp, in his Rankin lecture at Liverpool on April 25, took for his theme the mobilisation of knowledge, and spoke of the magnitude of the task of co-ordinating all discovered facts in such a manner as to make the accumulated knowledge available for student and worker alike. Given the enormous output of modern research it may be opportune to consider how the records of discovery and invention may best be codified. In our own sphere of the science of transport we pride ourselves on a very complete and well-ordered record. This however, is only one branch of science, and the recorded knowledge is fruitfully applied. But treating of science as a whole it seems useless to seek for the best means of co-ordinating records of new discovery if the economic system cannot make good use of the facts in their appli-

cation to the service of the individual and the community. We recall Sir Josiah Stamp's Presidential address to the British Association at Blackpool* in 1936, when he referred to the suggested inventions clearing house. He hinted then that new ideas might have to be controlled if the fruits of discovery were not to disorganise social economy by displacing human labour. If invention is to be restricted because an antiquated economic system cannot digest it, any discussion of new methods of co-ordinating the results of research seems to be purely academic.

* * * *

Overseas Railway Traffics

A net increase of £4,466 in traffic receipts has been secured by the Buenos Ayres Great Southern Railway during the past fortnight, thus reducing its aggregate decrease to £24,089. Entre Rios earnings for the same period show an improvement of £3,970 and give the company an increase to date of £65,528. Otherwise the receipts of the principal British-owned Argentine railways continue to fall heavily in comparison with the previous year, although to date the aggregate traffic figures are better for the Buenos Ayres & Pacific, the Buenos Ayres Great Southern, and the Central Argentine than they were for the corresponding period in 1935-36.

	No. of Week	Weekly Traffics	Inc. or Decrease	Aggregate Traffic	Inc. or Decrease
		£	£	£	£
Buenos Ayres & Pacific ..	46th	88,772	— 27,357	4,068,740	— 316,104
Buenos Ayres Great Southern ..	46th	127,605	— 4,095	6,890,507	— 24,089
Buenos Ayres Western	46th	43,921	— 7,134	2,088,400	— 220,363
Central Argentine	46th	104,414	— 39,286	5,532,510	—1,539,294
Canadian Pacific	20th	470,400	— 77,000	9,065,600	— 730,600
Bombay, Baroda & Central India	6th	281,850	+ 2,100	1,121,475	— 40,425

The Central Uruguay Railway shows to date an aggregate increase of £20,664 in sterling although it is still $239,684 behind in currency receipts.

* * * *

Railway Rates Tribunal Report

The sixteenth annual report of the Railway Rates Tribunal covering the year 1937 is a valuable record of the proceedings of the Court during that period. It gives extracts from the important decision of July 27 last when a general increase of five per cent. in charges for the four amalgamated railway companies was authorised to be put in operation as from October 1, 1937, and includes the figures showing the standard revenues and the amounts by which actual net revenues fell short of the standard in the case of each company. The corresponding increases allowed later to the non-amalgamated railway companies are also recorded. Mention is made of the dismissal of the appeal by the Chamber of Shipping of the United Kingdom against a decision of the tribunal which consented to the granting by the Great Western Railway Company of certain exceptional rates on grain between Bristol, Avonmouth Docks Junction, and Portishead Docks Junction and Truro, Penryn, and Penzance. Considerable space is devoted to the subject of railway freight rebates and the changes consequent on reduced railway assessments. The number of orders approving of agreed charges under the Road and Rail Traffic Act, 1933, was 707 in 1937 compared with 519 in 1936.

* * * *

Classification or Cost

The conclusions reached by Mr. George Mills, in the paper on "The Price of Transport," presented to the Institute of Transport and summarised in this issue, seem to point to the inevitability of some change in the system of charging for the transport of merchandise on the British railways. The present method of charging, under a general classification based mainly on "what the traffic will bear," tempered by the "taper" principle according to distance, has well served the railway companies and their clients almost since the inception of rail transport. Under the application of this well-tried system, and under statutory obligation, raw materials are carried cheaply (in some cases below cost) while the higher-valued finished articles pay rates not only in consonance with their value, volume, and liability to damage, but remunerative to the carrier. Now, however, the whole principle is challenged by the advent of the competing road haulier, with his more mobile unit, his lower working cost, and his freedom, so far, from statutory restriction. What is to happen? asks Mr. Mills. Should road adopt, or rail jettison, the classification? Or shall an entirely new system of pricing be worked out based on the real fact that cost is that which is consumed in production? Thus calculated in terms of reality, the most efficient form of transport would automatically be the cheapest.

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London Highway Development Survey

In December, 1934, the Minister of Transport appointed Sir Charles Bressey, with Sir Edwin Lutyens as consultant, to undertake a comprehensive survey of the highway development required to meet the future traffic needs of Greater London, and to prepare a highway development plan for the area. The results are embodied in a 40,000-word report which has just been issued, and the survey, which covers an area of 2,000 square miles, is based on a 30-year forecast of London traffic needs. Broadly, the recommendations are for a series of ring roads designed to deflect traffic from the centre of London; a new 12-mile east-west arterial road; a new north-south road of which a considerable length would be overhead; tunnels in Kensington and Westminster to give traffic on new routes an unimpeded course; extensions of Victoria Embankment to Putney Bridge and the Tower of London, bringing its total length up to eight miles; and a new route to Croydon airport. Some 270 years have elapsed since Sir Christopher Wren planned a remodelled London after the Great Fire, when his scheme covered an area of about one square mile. The territory now in question is 2,000 times greater and contains nearly one-fifth of the total population of Great Britain.

* * * *

An Interesting Method of Single-Line Switching

Few problems in railway signalling have given rise to more ingenuity than those connected with the switching out of token systems of single-line working, where the conditions are so different from those met with in double-line block working. The earliest proposals date back many years now; prominent among them is the method suggested by Dutton and Nevile and used on the Cambrian Railways, after which several schemes were introduced, varying with the type of instrument to be controlled. The necessity of making sure that everything is right before closing or opening an intermediate station, and of guarding against any possible mistake, has led to the production of several interesting devices. Although methods of switching involving no extra line wire for the through working have been proposed, they have, for various reasons, been used only to a limited extent, the more usual practice being to employ a separate line wire for the long-section apparatus. This may at times necessitate a considerable length being erected, and on page 982 we publish a description of an interesting scheme successfully introduced on the Central Argentine Railway. In this the existing selector telephone train despatching circuit is used to effect the necessary controls, impulses being transmitted by additional code keys on the traffic

* See THE RAILWAY GAZETTE, of September 11, 1936, page 405

controllers switchboard and operating selector mechanism at the stations concerned, thereby the movements of the staff switching slide instruments, and the transfer of the staff line circuit between the short- and long-section staff instruments, are governed, and every step in the opening and closing process is properly checked.

* * * *

Indian Railways Closing New York Office

It has been decided to close the Indian Railways Publicity Bureau in New York at the end of June this year. The Railway Board accepted the Wedgwood Committee proposals in regard to publicity, and it is considered desirable to concentrate more on publicity propaganda in India itself rather than external tourist advertising. The Indian Railways Publicity office in New York was inaugurated in 1929, and was one of some thirty such offices maintained by foreign railways and governments in the United States. Though the Indian State Railways will shortly cease their publicity activities in America, the Government of India will continue its connection in the U.S.A., as it is understood that the Commerce Department has appointed an Indian Trade Commissioner for New York from July 1, 1938. Mr. V. L. Dean of the Indian State Railways, the Resident Manager in New York, who prior to his present appointment was Principal of the Walton Training School, North-Western Railway of India, will arrive in this country in July before returning to India in September next.

* * * *

Cleaning the Saltash Bridge

Brunel's last masterpiece, the Royal Albert bridge, Saltash, which provides the rail link between Devon and Cornwall, is being "spring-cleaned," as we recorded briefly last week. An army of workmen is now engaged in repainting this structure, which is nearly half a mile in length and rises 180 ft. above the River Tamar. The job will take nearly a year to complete, by which time the bridge will be heavier by the application of ten tons of paint and 200 gall. of coal tar. Three coats of paint will be applied to the bridge and the total area to be covered is about 39,000 sq. yd. The most difficult parts to paint will be the two tubular trusses which form the centre spans. Each is 455 ft. in length, 16¾ ft. wide, and 12¼ ft. high. The men painting these and other similar parts of the structure will be let down from the top in boatswains' chairs. The bridge was opened in May, 1859, by the Prince Consort. Brunel was abroad for his health (he died in the following September) and his only view of the finished work was from a truck upon which he was slowly drawn across. The bridge, which took the Cornwall Railway Company four years to build, carries the only remaining single-track section of the G.W.R. main line between Paddington and Penzance.

* * * *

Neon Tubes as Signals in Tunnels

The difficulty of seeing signals in tunnels worked by steam traction needs no emphasising, and various devices have been provided here and there, including audible warnings, to supplement the ordinary indications and make the driver's task easier. The visibility of even the best colour-light signals rapidly falls off in an atmosphere charged with smoke; so much so that to increase their range by a small amount necessitates a totally disproportionate increase in the strength of the light beam. Under such conditions, therefore, the view of a signal is liable to be very fleeting, which is not satisfactory, even though it may have been announced on the multiple-aspect principle by a clearly seen signal in the rear. Much interest thus attaches to the results obtained with Neon type tubes at each end of Rouen (R.D.) station, described by Monsieur Robert Lévi in the *Revue Générale des Chemins de fer* for December last. The tubes are attached to the tunnel wall, level with the engine cabs, 15 m. (49 ft. 3 in.) in rear of the actual signal, each formed of two 2·5-m. (8-ft. 2½-in.) elements, so giving a 5-m. (16-ft. 5-in.) band of colour, red, yellow or green, in repetition of the signal aspect. Radiation in smoke makes the total effect about 12 m. (39 ft. 4 in.) long. By appropriate construction the tubes are practically monochromatic, their colour always appearing true to the eye despite changes in the atmosphere. Current is supplied by a 115/3,000 V. transformer. The arrangement has now been in use some 6 months and proved so successful that another installation is to be put in at Lisieux. Groups of ordinary coloured lights have, of course, been used for this purpose for some years in Switzerland.

* * * *

Bottled Gas for Station Lighting

In recent years Calor gas has introduced a revolutionary change into rural life by making possible both gas lighting and cooking without access to a gas main, and a similar arrangement for station lighting is being installed by the L.N.E.R. at Ratho station and yard, on the main line between Edinburgh and Glasgow. Ratho, which is at present lit by oil lamps, will thus be the first station in Scotland to be illuminated by bottled gas. The gas to be used is butane, an odourless, non-poisonous hydrocarbon gas, heavier than air, with small quantities of other gases, such as propane, in a liquid state. Butane will be supplied in small metal bottles or drums containing 28 lbs. of the gas in liquid form, sufficient to keep a 40-c.p. lamp burning continuously for more than a month. The lamps, of which a number can be supplied from a single drum, will be of the ordinary incandescent type, indistinguishable from the usual coal gas burners. The system has the advantage that it will not be necessary to run pipes across railway lines, footpaths, and bridges as every lamp can be self-contained and fed by its own miniature gasometer. If the installation at Ratho proves satisfactory, we understand that the system will probably be extended to other L.N.E.R. stations.

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Compounding a Felony

The involuntary scalding we underwent while washing our hands in a train through being, as juries sometimes are, misdirected on a point of definition (see our April 29 issue, page 823), had a sequel which proves that lightning can at least strike twice on the same route of the same railway. Without doubt the *genius loci* (can this be the one that has an infinite capacity for making pain?), would have been gratified at the success of his *encore* had he witnessed our exhibition of tap dancing, accompanied by an un-Bowdlerised "compartmental" ditty. No doubt the railway company in question will excuse itself by saying that the labelling of one tap "C" (*chaude, caliente, calda*) is for the guidance of the noble army of French, Spanish, and Italian visitors to England. To carry this device to its logical conclusion, however, the other tap should not only bear the superscription "F" (*froide, fria, fredda*), but definitely and incontrovertibly *be* "F." Otherwise this "hands across the 'C'" business can be fraught with great inconvenience, if not danger. In conclusion we trust that the tendency for two of a kind to become three will not prevail in this instance, or we might be sorely tempted to take our courage in the unbandaged part of both hands and divulge the name of the delinquent railway.

XUM

The Charing Cross Collision, District Line

SO elaborate are the precautions taken on the London Underground railways to prevent collisions, and so unfailingly do the automatic signals and train stops work, that the serious collision on Tuesday morning, May 17, between Charing Cross and Temple stations, which caused six deaths and injuries to some 40 persons, is happily unprecedented. So far as we can trace, the District Railway has had only one previous fatal collision, namely, on January 29, 1876, just west of Earls Court when, on trying to start from a signal, the train ran backwards on the steep incline towards Addison Road and was struck by a train going to Hammersmith. The recent accident at Charing Cross, moreover, was not only by far the worst that has ever occurred on any of the railways now owned by the London Passenger Transport Board, but was also the first one fatal to passengers since the collision at West Hampstead in 1907—more than thirty years ago. Actually, a slight collision at Baker Street on June 14, 1925, subsequently proved fatal to one passenger, as the shock accelerated the serious heart disease from which he was suffering, but this was an unusual case which may scarcely be reckoned as a collision fatality. The causes of the West Hampstead collision, which occurred on October 26, 1907, were never completely ascertained, but there is little doubt that the occurrence was due to some irregular manipulation of the old lock-and-block apparatus. It was the first occasion on which passengers had been killed as the result of a train accident since the opening of the first section of the Metropolitan Railway in January, 1863, and by 1907 that railway had then conveyed some 3,000 million persons. Three passengers were killed, however, near Aldersgate Street on December 19, 1866, when a contractor's workmen allowed a girder to fall on a train. There have, of course, been other collisions on both the Metropolitan and the District Railways, and those on the London tube railways were mentioned in an editorial note in our issue of March 18 last. In no cases other than those we have mentioned, however, have passengers been killed and this is a truly remarkable safety record. While it would be improper for us to speculate upon the cause of the Charing Cross collision pending the holding of the Ministry of Transport inquiry, we may record that Charing Cross station, District Line, which the colliding train had just left, is a point where the trip-cock lever on every train is proved in position through a violet light on the starting signal, which appears as the train approaches, being extinguished only when the trip-cock touches a treadle device in the station.

* * * *

Preserving Model Locomotives

IN the April issue of our associated publication, *The Railway Magazine*, a correspondent advanced the suggestion that scale models of interesting locomotives should be preserved when space precludes finding shelter for the full-sized originals. The idea has been taken up enthusiastically by Mr. G. F. Westcott, Keeper of the Land Transport Section of the Science Museum, who points out that in the section of the Science Museum devoted to railways, the restricted exhibition space available results in the only practical means of adequately illustrating the development of the locomotive being by means of scale models. Although it cannot give the same impression of size and power as the original locomotive, a small scale model, in addition to the saving of space, has several other advantages for exhibition and record purposes over the full-sized engine. For example, it can be made to show the locomotive as it was originally built, whereas the actual engine has generally been considerably altered before it becomes available; it is more easily sectioned to show its internal construction; its small size enables all its details to be seen at a glance and makes its comparison with other models rapid and easy; it can be kept clean under glass; and a simple and quiet method can be used to show it in motion.

The Science Museum possesses a good collection of locomotive models, but there are many gaps in it which should be filled, and Mr. Westcott suggests that this museum would be the most suitable home for a series of models such as *The Railway Magazine* correspondent has suggested. Moreover, Mr. Westcott says that if any model engineer should contemplate making a model for the museum series, he would be very glad to help him in any way he could. In the Science Museum, which is the national museum of science and industry and is visited by about a million and a quarter people annually, the maker of a suitable model would know that it was not only adequately housed, but that it was housed where it would give the greatest amount of instruction and pleasure to others. The experience of the Science Museum is that the most suitable scale for a model is one-eighth full size. Many of the best models there have already been built to this scale, and it has been found that at this scale it is possible, with good workmanship, to reproduce accurately and in the correct materials all the details of the original engine. In order to illustrate the lines on which the Science Museum is trying to develop its locomotive collection, we may add that working drawings, as accurate as the limited information available permits, of Stephenson's *Planet* locomotive of 1830 are now being prepared, and it is hoped that a sectioned eighth scale model of this engine, which marks such an important stage in the evolution of the steam locomotive, may be made in due course.

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Rhodesia Railways Limited

THE report of the Rhodesia Railways Limited for the financial year ended September 30, 1937, includes the results of the combined system resulting from the acquisition, as from October 1, 1936, of the undertaking and assets of the Mashonaland Railway Co. Ltd. Gross revenue of the combined system for the year under review showed an increase of £1,071,872 or 29·47 per cent. in comparison with the previous year, and was due to an all-round improvement in traffic. The largest increase was £643,404 in the receipts from minerals resulting from the considerable expansion in the copper, coal and coke, and chrome ore traffic. There were also increases of £398,208 and £41,050 in the receipts from general goods and passengers respectively, which reflect the satisfactory state of general trade in Rhodesia. Working expenditure advanced by £256,618 or 10·18 per cent., mainly as the result of an increase of 687,507 tons or 28·54 per cent. in the tonnage of goods and mineral traffic carried, so that the surplus of gross revenue over working expenditure was £815,254 higher. Operating figures of the combined system are compared in the accompanying table:—

	1936–37	1935–36
Miles open	2,442	2,442
Train-miles	5,964,861	4,661,600
Passengers	796,494	697,082
Tons, general goods	1,306,943	1,096,468
Tons, minerals	1,789,571	1,312,539
Operating ratio, per cent.	59	69·3
	£	£
Passenger receipts	383,629	342,579
General goods receipts	2,059,819	1,661,611
Mineral receipts	1,970,915	1,327,511
Gross revenue	4,709,069	3,637,197
Working expenditure	2,776,407	2,519,789
Surplus	1,932,662	1,117,408

XUM

After providing for debenture interest and other charges there was a profit for the year under review of £916,772, compared with a profit of £117,174 (after taking into account the Mashonaland Railway loss of £100,364) in the previous year. In accordance with the terms of the railway legislation in force in the territories of Southern Rhodesia, Northern Rhodesia, and the Bechuanaland Protectorate, £53,084 of this profit has been placed to the credit of the Rates Stabilisation Account, making it £95,828, and £863,688 has been placed to the credit of the Reserve Account, making it £1,675,657 at September 30, 1937. The legislation above-mentioned provides for the building up of the reserve account to a minimum of 2½ times the amount required for the annual service of the debentures, which is at present £1,100,702, and enacts that there is to be no reduction of rates for the purpose of producing a decreased total revenue so long as the amount standing to the credit of the reserve account is less than twice that amount. When the reserve account at the beginning of any financial year exceeds one year's debenture service, the railway company may, in respect of that year, pay a dividend on the ordinary shares. As the combined reserve account of the two companies amounted only to £811,968 on October 1, 1936, no dividend can be paid in respect of the year ended September 30, 1937. In order to cope with expanding traffic, orders were placed in 1937 for 12 Garratt engines and 300 high-sided 45-ton steel bogie wagons. Gross receipts from the road motor services during the year under review amounted to £52,648, an increase of £4,532. The amount of goods and agricultural produce carried by these services was 38,881 tons, an increase of 6,018 tons. European and native passengers numbered 35,314, an increase of 12,486.

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Preliminary Review of Nizam's Railway in 1937-38

PENDING the issue of the annual report in June, a preliminary review of the working of the Nizam's State Railway for the financial year ended March 31, 1938, has been issued by Major E. W. Slaughter, the Agent. No new mileage was added during the year, but further survey investigations were carried out with a view to reducing the estimated costs and improve the alignments of the proposed extensions in the Bhir and Adilabad areas. Financially, gross earnings for the whole system worked by the N.S.R. administration, including lines operated on behalf of the Government of India, are expected to reach the record figure of Rs. 246 lakhs. Net earnings also should exceed those for 1936-37 and 1935-36 by Rs. 16 and Rs. 40 lakhs respectively, as is shown by the following table, the figures in which are lakhs of rupees:—

	1935-36 Actual	1936-37 Actual	1937-38 Forecast
Gross earnings	212	229	246
Working expenses	121	114	115
Net earnings:			
total	91	115	131
Nizam's lines	86	108	124
Government of India ..	5	7	7

It will be noticed that working expenses are expected to be only Rs. 1 lakh higher in the past financial year than in that ended March 31, 1937, a remarkable achievement considering the increase in gross earnings, and the fact that one million more passengers and ¼ million tons more freight were carried, gross ton-mileage rising from 1,587 to 1,757 millions. The commodity increases were mainly in coal, grain, pulse, stone, and timber, the number of wagons loaded at the three collieries served rising from 41,000 to 54,000 during the year under review; this was another record. The whole staff is to be congratulated on the improved efficiency that has made the above figures possible.

Other improvements effected include increases in train services, reductions in certain rates and fares, both ordinary and as charged for cheap return, week-end, and travel-as-you-like tickets issued on special occasions. Goods services were accelerated, giving earlier deliveries and providing 25 per cent. more wagons available for loading due to quicker turn-round. The comfort of passengers, particularly third class, has also been increased, new and rebodied coaches being of modern standard. Electric fans have been fitted in several new third class compartments, and it has been decided that this practice is to be continued to embrace all new third class stock built in future. Four new air-conditioned railcars, with improved lower class accommodation and general comfort, have been ordered. Road services controlled by the railway administration covered a mileage of 4,078, as against 3,977 miles at March, 1937, the former figure representing about two-thirds of the total road mileage in the Nizam's dominions. The road fleet grew from 318 to 362 vehicles including 252 having diesel engines. Road passengers increased from 10¾ to 11¾ millions, and lorry and van tonnage of goods and parcels rose from 8,000 to 41,000 during the year.

Further measures of co-ordination between road and rail services have been effected, and the daily number of connections between the two forms of transport was 238 at March 31 last. Road-cum-rail excursions and door-to-door collection and delivery in city areas have developed considerably and gained greatly in popularity. Road service out-agencies increased from 9 to 11 and are well patronised. The latest development under the railway administration is the inauguration of air-services within the State and to British India. The administration is now preparing landing grounds, training staff, and arranging for the purchase of planes to be used for flying training and later for commercial services. As already reported in our Overseas columns the railway is catering for tourist traffic to Ellora, Ajanta, and Daulatabad by building a modern hotel at Aurangabad and running luxury coaches. It will be seen, therefore, that development in every direction is taking place very rapidly under the enterprising administration of the Nizam's State Railway, which deserves much credit for its go-ahead and pioneering policy.

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Indian "XB" Locomotives

THERE have been notorious cases of rough running locomotives in the past. Like the Indian "XB" Pacifics, one of which was involved in the Bihta derailment last year, their appearance has belied any such peculiarity, but as a rule inquiry and tests have revealed certain detail imperfections the modification of which has rendered their behaviour in ordinary service normal. The case of the Baltic tank engines of the old L.B. & S.C.R. may be recalled. As first built they exhibited a tendency in certain circumstances to oscillation, which, however, never assumed a really dangerous form. A modification of the springing, together with a reduction in the effective height of the side tanks, converted these engines into probably the smoothest running of any on the railway. A more drastic reconstruction was undertaken in the case of the 2-6-4 "River" class tank engines of the Southern Railway after the Sevenoaks derailment, in which one of these engines was involved. They were converted from tank to tender engines. There are certain wheel arrangements

which give an inherently unstable locomotive for fast running, but the Pacific type is not subject to this defect, and the Indian "XB" locomotive is of that type. Indeed, it is one of three standard Pacific types of which considerable numbers are in service on the Indian railways, one larger and one smaller than the "XB."

Quite minor modifications may affect the riding qualities of a locomotive out of all proportion to their extent. The stiffening of side control springs, the adjustment of bearing springs, the damping of vibratory tendencies by the insertion of fibre pads, and so on, are possible ways of converting a rough running to a comparatively smooth running locomotive, and if a conversion in that direction is possible the likelihood of a converse alteration having the opposite effect cannot be ignored. The result of the independent inquiry into the design of the "XB" locomotives (see our Overseas section of May 13) will in the circumstances be awaited with keen interest. The "XB" type locomotive and the permanent way at the site of the Bihta derailment are illustrated on page 986.

LETTERS TO THE EDITOR

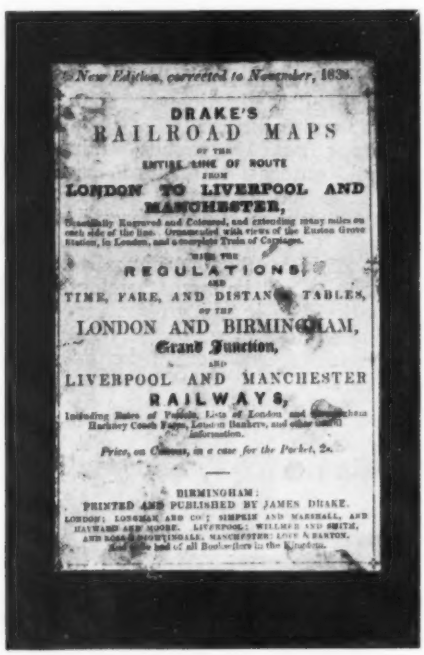
(The Editor is not responsible for the opinions of correspondents)

A Timetable Centenary

60A, Green Lane, Northwood,
Middlesex, May 18

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—As you have already pointed out in your columns, the present year marks the centenary of the completion of the first trunk railway system in Great Britain with the opening throughout of the London & Birmingham Railway, connecting *via* the Grand Junction with both Liverpool and Manchester. It would also appear that 1838 saw the publication of the first general timetable. Although the earliest copy extant of *Bradshaw* is that of October 19, 1839, there are sound reasons for believing that George Bradshaw produced a timetable at least a year earlier, possibly in September, 1838, at the time the through railway connection was completed to the Metropolis from his headquarters in Manchester.


New Edition, corrected to November, 1838.

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In *The Manchester Guardian* of January 13, 1885, reference was made to a timetable produced by James Drake of Birmingham, headed "New edition, corrected up to May 1, 1839." My copy of Drake is earlier and as may be seen from the accompanying photograph bears the inscription "New edition, corrected to November, 1838."

It would be of very considerable interest to know whether a copy has survived of the original edition, revealing the date that Drake's timetable first made its appearance. The wording on the cover of my copy seems to suggest that this work was produced at the time of the opening throughout of the London & Birmingham Railway (September 17, 1838) and therefore was possibly contemporaneous with the first *Bradshaw*. Perhaps also one of your readers might know of other general timetables of this period. For example, some correspondence in *The Times* about five years ago produced a reference to "Fowler's Railway Travellers' Guide" published in Leeds in 1838, but I have not been able to trace a copy.

Yours faithfully,
REGINALD B. FELLOWS

A Unified Colonial Railway Service?

London, May 17

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I have read the article in your issue of April 29 in which a unified colonial railway service is proposed. I do not think an officer, without knowledge of the language or customs of a country, could get the same work out of his staff of all grades as one who has been "brought up on" them. It is claimed for the scheme that *esprit de corps* would become a vital thing. This is contrary to experience elsewhere where grouping has taken place. Far more *esprit de corps* is evident in the more "family" relations between officers and staff of all grades of the individual lines prior to grouping than after it, when each man becomes merely a cog in a great machine.

The policy of moving superiors from one constituent line in a group to another has also proved most unpopular with the subordinate staff in almost all cases, and the same would obviously be the result in this colonial scheme. To the European officer the scheme has, no doubt, its decided advantages, but not so to the subordinate staff. Moreover, one cannot visualise the home-rule spirit pervading Ceylon taking kindly to methods imported from Tanganyika or the Gold Coast. The advantages of standardisation could surely be obtained without resort to this scheme if the Crown Agents considered it desirable and liked to enforce it.

Yours faithfully,
ANOTHER OVERSEAS RAILWAY OFFICER

FRENCH ENGINEERS IN GREAT BRITAIN.—The French Institution of Civil Engineers has arranged a visit to Great Britain from Sunday, June 12, to Monday, June 20. The party will spend Monday, Tuesday, and Wednesday in London, during which time they will pay visits to a number of engineering installations in the neighbourhood and will be accorded a reception on Monday afternoon at the Institution of Civil Engineers when papers will be delivered by Mr. R. F. Hindmarsh on "The Handling of Coal for Export" and Mr. J. Wright on "The Production and Distribution of Electrical Energy in Great Britain." On Wednesday, the French engineers will be the guests of the Institution of Civil Engineers at a conversazione. On Thursday, they will travel North by the Royal Scot to Glasgow, where they will visit the Empire Exhibition and on Saturday will take part in a tour through the Trossachs to Edinburgh, returning thence on Sunday to London for Paris.

XUM

PUBLICATIONS RECEIVED

Stock Exchanges (London and Provincial) Ten-Year Record of Prices and Dividends, 1928 to 1937 inclusive. Thirtieth issue. Compiled by Fredc. C. Mathieson & Sons, 16, Copthall Avenue, London, E.C.2. 10¾ in. by 7¼ in. by 1⅛ in. 588 pp. Price 20s. net, by post 20s. 6d.—Information of great service regarding price movements of investments is provided in this, the 30th issue, of the "Ten-Year Record." As it includes transactions in the less-known stocks and shares, which are quoted only on the provincial stock exchanges, as well as those officially quoted on the London Stock Exchange, it is a necessary supplement to the Stock Exchange Official Yearbook, &c. The arrangement of the highest prices in one line and the lowest in another is a much appreciated feature, and the method of comparing dividends, by setting each payment, whether actual or at a rate per cent. per annum, against the corresponding amounts in previous years is also of great assistance to investors. In the ten-year period to which the "Record" relates there have been wide fluctuations of values, as it included the depression which set in after 1929 and the marked recovery in 1936 and 1937. Generally speaking, the prices of Home railway debenture stocks reached their highest levels in 1936, but hopes of increased dividends tended to raise the quotations of ordinary stocks in 1937 above those of 1936.

G.W.R. Engines.—The fourteenth edition of "G.W.R. Engines," the book dealing with the locomotive stock of the Great Western Railway, has recently been published by the company. While retaining the principal features of its predecessors, opportunity has been taken, besides revision, of adding much new material. In the foreword Mr. W. G. Chapman, the compiler and author of many other popular G.W.R. publications, states that such has been the progress in locomotive construction on the Great Western Railway since the last edition of this book appeared, in 1935, that over 150 deletions, alterations, and additions have been necessary in the list of named engines alone. The scope of the book is indicated by such chapter headings as "Naming of Locomotives," "Numbers, Types, and Classes" and "Historical Survey," after which is a series of photographs of each of the G.W.R. standard locomotives. A new feature in this section is the inclusion of an outline diagram of each class of engines with its salient dimensions and other interesting data, together with a note on the purpose for which each class of engines has been designed. Fifteen tender and eleven tank locomotives are illustrated herein, the former including the recently produced "Manor" class. Other chapters deal with Swindon Works, passenger and freight train names, the Cheltenham Flyer and Cornish Riviera Limited expresses, and the growth of locomotive power. There is an alphabetical index of all named engines, which is supplementary to the lists of names previously given in respect of each class of passenger tender engines. The book, which also contains many full-page illustrations of individual locomotives and trains photographed at speed, is published at one shilling. Copies may be obtained from any bookstall on the G.W.R. system, or direct from the Superintendent of the Line, Paddington station, London, W.2.

Portraits of the Iron Horse: The American Locomotive in Pictures and Story. By Otto Kuhler and Robert S. Henry. Chicago: Rand McNally & Co., 536, South Clark Street. 10¾ in. × 9 in. 80 pp. Price $2 net.—A first glance at this interesting volume is apt to deceive the average British reader into thinking that the intended appeal is exclusively, or at any rate primarily, to juveniles, as the style of production is one which on this side of the Atlantic is commonly associated with such books. The text is printed in very large type on the left-hand pages and every right-hand page is devoted to a pen-and-ink sketch with a comprehensive caption. This hasty impression is immediately dispelled, however, when one begins to read the text, for then it becomes obvious that the authors have endeavoured—and with considerable success—to present to the general public, in non-technical language, an accurate and well-designed account of the evolution of the steam locomotive in the U.S.A. The story is the work of Mr. Robert S. Henry, who at present is Assistant to the President of the Association of American Railroads and previously had considerable experience as a lawyer and a newspaper man. He therefore brings to his task the qualities of accuracy and knowledge, and also a facility for expressing himself. Mr. Otto Kuhler's contribution to the volume is the drawing of the pictures, and close examination reveals their skill for, although they are in no sense photographic, they have succeeded in creating "atmosphere" without loss of proportion. Mr. Kuhler began life as the son of a German steel manufacturer and went to the United States in 1923.

One feature which suffices to show the type of interest this book includes, is the account of the way in which the names assigned to locomotives according to their wheel arrangement were derived. For example, the 2-8-0 locomotive derived its name Consolidation from the fact that it was the design evolved by Alexander Mitchell in 1866 to meet the needs of a number of small lines at that time consolidated to form the Lehigh Valley Railroad. Then, the use of the word Columbia for the 2-4-2 type is traced to the fact that the Baldwin Works adopted the name for a type developed during the year which marked the 400th anniversary of the landing of Columbus in America. Another name—cryptic to most British readers—is Forney, but in this book it takes life as the surname of Mathias N. Forney, who was not only a locomotive designer, but for many years edited the *Railroad Gazette*. Altogether we can commend this volume as a successful effort to present in readable style an interesting, accurate, and popular account of the development of the American steam locomotive.

Factories Act, 1937: Comparative Statement. London: National Confederation of Employers' Organisations, Millbank House, 2, Wood Street, Westminster, S.W.1. 9½ in. × 7¼ in. 200 pp. Price (paper covers) 2s. 9d., (cloth) 4s. 0d. net, post free.—The important and far-reaching changes in factory legislation introduced by the Factories Act, 1937, which will come into operation on July 1 of this year, affect all occupiers of factories, and this handbook, originally prepared for the use of employers' organisations, will be of great service to all factory owners, including railway companies. It sets out every requirement of the Act in clear and simple language and contrasts these requirements with the corresponding provisions of the existing law. References to railway companies will be found on pages 14, 34, 35, 100, 152, 156, and 192.

Pictorial Plan of Glasgow.—In connection with the Empire Exhibition in Scotland, John Bartholomew & Son Limited, of Duncan Street, Edinburgh, 9, and 66, Chandos Street, London, W.C.2, has issued an entirely new coloured plan of the city of Glasgow on the scale of 5¼ in. to a mile. It is embellished with views of the principal buildings and places of interest and has a decorative border showing the coats of arms of Great Britain, the Dominions, Colonies, and Dependencies. In addition to being a useful folding map to fit the pocket, it makes an attractive souvenir of the Empire Exhibition. The price is 1s. paper and 2s. 6d. cloth, and copies may be had flat for framing at the same price. Railways are represented by miniature tracks and the principal stations are in facsimile—though it is not easily understandable why Central station should be depicted about four times as large as St. Enoch, which is actually almost the same size. Railway lines, too, vanish entirely on this map when they go underground, which, with the many miles of tunnels in and around Glasgow, is somewhat confusing. Though perhaps not quite in accordance with the style of presentation of this publication their hidden courses might be indicated by dotted lines; as it is Queen Street station with a short unattached stem of line looks rather like a tadpole, and the intertwining east to west underground lines disappearing and reappearing all over the map remind us of the undulations of our celebrated Scottish friend, the Loch Ness Monster.

XUM

THE SCRAP HEAP

It is said that the engine manufactory of the North-Western at Crewe, turns out a new locomotive and tender every Monday morning.—*From "The Builder" of May 5, 1849.*

* * *

BY ACCIDENT OR DESIGN?

The Boy with a Mania for Railway Trains

CURED AT 95

Two consecutive headlines in the "Evening News" recently.

* * *

When the Light Railway Transport League chartered a tram from the London Passenger Transport Board for a 60-mile ride from Waltham Cross (Herts) to Purley (Surrey) and back last Sunday, certain non-members were privileged to participate in what, by reason of its length, was hailed as an historic tramcar journey. Among them was a correspondent of *The Times*, who evidently considered the one-way trip adequate to the occasion. He wrote: "A 30-mile tramway ride is about the most uncomfortable way of making history. Happily, there is a railway station at Purley."

* * *

Towards the end of March last a lady purchased at Fareham a monthly ticket to Waterloo and then proceeded to the parcels office at the former station and asked for the loan of pen and ink. The lady then produced a form from her handbag, which she proceeded to fill up. Upon completion she asked for her signature to be witnessed by two persons and, as the delivery agent and his assistant happened to be in the office, they met her wishes. It then transpired that the passenger had just prepared her will, and the signatures of the witnesses were duly attested before she began her journey! This incident is recorded in the *Southern Railway Magazine* and is vouched for by Mr. E. H. Morris, of the relief staff, who was performing temporary duty at Fareham, but it should not be misinterpreted as a reflection on safety when travelling by the Southern Railway!

* * *

Recently, the *Evening Standard* published a note on the Moscow-Windau-Rybinsk Railway Company in which it remarked that nearly £3,000,000 of 4 per cent. bonds were issued in midsummer 1899 and outstanding bonds total £2,576,000. The last interest payment was under the guarantee of the Imperial Russian Government in 1918. Since then the price of the £20 bearer bonds has fallen with the hopes of the holders. Recently business in the bonds has been done at 1s. 3d., but chances of any successful claims on the property are still slender. Before the bondholders can get their rights recognised they have to persuade the Soviet Government and the Latvian Government as to which is now responsible for the railway. Latvia claims all the railway property in its territory, but disclaims any responsibility towards bondholders. The Latvian authorities say that the Soviet Government must bear this responsibility. So, it is remarked in conclusion, the unfortunate bondholders of the Moscow-Windau-Rybinsk Railway Company continue to play a purely shuttlecock part between the Latvian and Soviet battledores.

* * *

The G.W.R. engine-shed cat at Crewe was sleepy. She wandered round among the engines, found a nice dark spot and settled down. Mr. J. Taylor (driver) presently came on duty, and after preparing his engine worked a goods train non-stop to Oxley sidings. At the end of this trip he proceeded to the Oxley shed where he turned, coaled, and watered his engine. He then asked a fitter to examine the injector. As the steam valve was opened there was a flutter, and out from underneath the tender strolled the feline passenger, who had travelled fifty miles on the water scoop at a speed which often reached forty miles an hour. We understand from the *G.W.R. Magazine* that she journeyed home in the comparative comfort of the tool box!

* * *

SURPLUS PROPERTY PROBLEM

Surplus railway property arising from amalgamations, rationalisation schemes, and the abandonment of certain projects, is being disposed of in a novel way by the Estate Department of the L.M.S.R. Ten sites formerly occupied for other purposes are now let for such varied activities as a boxing stadium, furniture factory, miniature zoo, badminton club, and cinema. A disused railway tunnel has now been converted into a shooting range by a Glasgow Rifle Club.

Engine sheds at Plaistow, Camden, and Peterborough, have become warehouses for toys, sugar beet, and wine spirits. The engine shed concerned at Camden (N.W. London) was originally built by the London & Birmingham Railway, the centenary of whose throughout opening is being celebrated this year by the L.M.S.R. Disused premises in South Wales are the meeting place of a religious body; two redundant laundries have become a piggery and furniture shop respectively.

Six stations either entirely or partly closed to traffic, are being used for, among other things, an ornamental garden, dwelling house, men's club, and merchant's showroom. Another disused station is a Boy Scouts' headquarters, and another a petrol-filling station. New uses, too, have recently been found for many waiting rooms, the majority of which are rented to various organisations as meeting rooms. Some peculiar conditions, viewed in the present day light, were attached to the surrender of land to the railways at the time of construction. One such condition was the provision in a few instances of a private waiting room for the use of the landowner. Owing to the social changes and the growing use of private motorcars, this amenity has lost its Victorian value, and one such waiting room is now used as a practice room by the local Silver Band.

* * *

The comedy of the "lost" railway station in Paris for visiting royalties (see page 920 of THE RAILWAY GAZETTE for last week) is even better than I thought. Apparently, it is no longer even a studio. It has been turned into a restaurant, and the owner expects to lose a great deal of business by its reconversion into a railway station.—*Charles Graves in the "Daily Mail" of May 13.*

* * *

Although all within the 20-mile radius of London there are remarkable differences in the heights above sea level of the following Southern Railway suburban stations, which a correspondent has sent to the *Southern Railway Magazine*:—

	Ft.		Ft.
Addiscombe Rd.	182	Sutton ...	212
Norwood Jc. ...	170	West Norwood	176
Waddon ...	146	Wimbledon ...	70
West Croydon ...	179	Worcester Park	70
Beckenham Jc.	142	Kenley ...	282
Epsom Downs ...	355	Whyteleafe ...	312
Tattenham Corner	495	Warlingham ...	337
Merton	52	Caterham ...	430
Norbiton ...	54		

None of these stations, however, can boast the elevation of Bridestowe, on Dartmoor, which, at 950 ft., is the highest station on the Southern Railway.

A well-known slogan adapted by the Canton-Kowloon Railway to advertise a fast railway service

OVERSEAS RAILWAY AFFAIRS

(*From our special correspondents*)

SOUTH AFRICA

Signal Cabin Burnt Out at Johannesburg

On Sunday, April 3, a fire broke out in the all-electric signal cabin at Johannesburg station and spread with such rapidity that it was impossible to save any of the valuable electric equipment. Containing 133 levers this cabin was the largest and most up to date in South Africa, and the extent of the damage may be gauged from the fact that the cabin cost over £40,000 and took 12 months to build and equip. Johannesburg station is one of the chief railway nerve centres in the sub-continent, and the effect of the total destruction of the intricate electric signalling controlling all the train movements to and from the station can well be imagined. It was necessary to revert to the primitive method of hand-signalling with consequent delays to trains and inconvenience to the public, but a temporary cabin was erected enabling electric signalling on a modified scale to be introduced in the remarkably short space of ten days after the mishap.

Airways Expansion

Remarkable expansion of South African Airways has taken place recently; the services have been doubled in less than a year, and in nine months the machine mileage has risen from a monthly figure of 67,431 to 130,706. The coastal service from Cape Town to Durban, which six months ago comprised two trips weekly, is now represented by five flights a week, while the twice-a-week Rand—Cape Town direct service has been increased to four trips weekly. As an indication of the growing importance of the Union's air services, may be cited the extraordinary increase in the quantity of mail matter carried, which rose in the past year from a monthly total of 20,479 lb. to 212,412 lb. Further extension and intensification of air services are contemplated at an early date.

Welding of Rails

On a section of track on the West Rand 1½ miles of 96 lb. rails have been welded experimentally into 120 ft. lengths by the Thermit pressure process. The experiment having proved satisfactory arrangements have been made to obtain plant and material with a view to using this process in the welding of rails on bridges and in tunnels. Experiments have been made with the flash-butt welding of rail joints in Natal where a depot has been established at Daimana for the welding of rails into 120-ft. lengths. Some five miles of rails have already been welded there. So successful has this process been that the practice of establishing several depots throughout the Union is being considered.

RHODESIA

Disastrous Head-on Collision

One of the worst accidents in the railway history of South Africa occurred at 3.30 p.m. on April 4, when No. 66 up, the Bulawayo to Johannesburg and Cape Town passenger train, collided in a cutting with No. 45 down goods train between Plumtree and Tsessebe, 72 miles south of Bulawayo on the borders of Southern Rhodesia and the Bechuanaland Protectorate, resulting in 26 deaths and some 22 injured. Of those killed eighteen were passengers, the remainder being both the engine crews, a locomotive inspector and some of the occupants of the trainmen's cabooses, conveying the second crews which are carried on the 484-mile run between Bulawayo and Mafeking. Both locomotives were badly damaged, the two cabooses wrecked, two coaches telescoped and completely wrecked, a third coach damaged and derailed, and several trucks on the goods train were overturned and derailed. Fortunately, the remaining coaches, dining saloon, and guard's van remained on the rails and the uninjured passengers and train staff were able to render first aid. Rescue work was hampered by the difficulty in getting to the scene of the accident due to the very bad roads at some distance from the line and to the wreckage being confined in the cutting. The line was blocked for over 48 hr. before the cutting could be widened and the wreckage moved to enable a deviation to be laid down.

A departmental board of enquiry was immediately appointed by the South African Railways administration which works the Bulawayo—Mafeking section of the Rhodesia Railways.

At the inquest, it was revealed that the crossing arrangements made by telegraph by the stationmasters at Tsessebe and Plumtree were for the two trains to cross at Ramaquabane siding, but that the crossing orders issued by the Tsessebe stationmaster to the goods train showed Vakaranga siding—on the Plumtree side of Ramaquabane—as the crossing point. The usual crossing was at Tsessebe, but the goods train was ahead of time and an out-of-course crossing had been arranged. Due to the cutting being on a curve each driver can have had only a momentary glimpse of the other train before the collision occurred, but the mail train driver had applied his brake.

Restoration of Pay Reductions

Negotiations have been proceeding recently between the Railway Workers' Union and the General Manager of the Rhodesia Railways for the restoration of pay cuts, on the grounds of the improved financial position of the railways. From March 1, 1938, the balance of the pay reductions made in May, 1922, have been restored. In 1922 the substantive pay of the railwaymen was reduced by amounts from £3 a month downwards, of which a partial restoration of from £1 12s. a month was made in 1927, and the full amount is now restored. It is officially stated that about 3,700 employees will receive an addition to their pay.

INDIA

Cyclone Derails Train

On the evening of April 24, a passenger train on the Rohilkund and Kumaon Railway was caught in a cyclone near Sitapur station. The gale struck the train with such force that the two rear bogies and the breakvan were thrown off the rails. The roof of one of the carriages was also blown off; four injured passengers were promptly removed to a hospital at Sitapur.

E.I.R. Earnings

Mr. J. A. Bell, Agent, presiding over the Calcutta Advisory Committee of the East Indian Railway, announced satisfactory traffic figures for the year 1937-38. He anticipated that the gross earnings of the system would amount to about Rs. 21·1 crores, the highest figure on record in the history of the railway. In 1927-28, the gross earnings reached Rs. 20·55 crores. The total tonnage carried in 1937-38 would, he said, amount to over 26 millions, which was also a record, the next highest being 24 million tons in 1929-30. Mr. Bell pointed out that in spite of an increase of over two millions in the tonnage carried in these two peak years, the goods train-mile figures were practically identical in both years and there was very little variation in the length of lead. Passenger train-miles would also reach a record figure of 17 millions in 1937-38, the previous record being just over 16 millions in 1929-30. In 1929-30, however, 72 million passengers were carried, whereas the figure for 1937-38 would be only 62 millions. It thus appeared from these figures that the question of over-crowding was not a serious problem on the E.I.R. Mr. Bell further observed that the railway was working with 100 fewer engines and considerably smaller staff than in previous peak years.

1938-39 Works Programmes: East Indian Railway

The open line works programme on the East Indian Railway is estimated at Rs. 1·52 crores without allowing for stores suspense, credits for released materials and probable savings. Track renewals will absorb over Rs. 92 lakhs. In addition to new works, strengthening on the Grand Chord section between Gomoh and Gaya, to permit of increased loads, and the remodelling of numerous stations and of Jamalpur

workshops, and the replacement of machinery and plant therein, also the provision of cabin interlocking at several stations, will be continued or completed during the year.

In pursuance of the policy of reconditioning older and weak bridges, over Rs. 6¼ lakhs have been provided during 1938-39. A sum of Rs. 9·38 lakhs will be spent on the provision of amenities for passengers, such as raised platforms, the improvement of sanitary arrangements, water supply to passengers and the provision of lower class waiting rooms and waiting halls.

Eastern Bengal Railway

Out of a total estimate of Rs. 142·77 lakhs, a net cash provision of Rs. 109·50 lakhs has been made in the E.B.R. programme for 1938-39. The rolling stock programme has been approved at Rs. 58·48 lakhs, and a substantial provision is made for track renewals.

The works programme is not very heavy, but a sum of over Rs. 10 lakhs will be spent on improvements at various workshops, including the renewal of machinery.

Further expenditure on the Hardinge Bridge protection and training works has been found necessary and a scheme for the extension of the left guide bund apron and the longitudinal extension of the left guide bund at an estimated cost of Rs. 42·75 lakhs has been approved. The budget provides for an expenditure of Rs. 28·35 lakhs on this work during the year 1938-39.

UNITED STATES

Fares' Increase Petition Refused

The Interstate Commerce Commission has refused the application of the Eastern railways for permission to increase their passenger fares (for coach travel) from 1d. to 1¼d. a mile. Only three railways made any determined effort to secure the proposed increase. While all the Eastern railways were, formally, applicants for the increase, it is an open secret that many passenger traffic officers share the commission's majority opinion, namely, that the railways are better off at existing, than they would be at higher fares.

Train Service Improvements

While the current financial crisis claims preponderant attention in American railway circles, improvements in train services are continuing, albeit at a decelerated pace. The Twentieth Century Limited of the New York Central, and the Broadway Limited of the Pennsylvania, the famous New York—Chicago trains, will appear with new lightweight, streamlined rolling stock on June 15, and at the same time their schedules for the New York—Chicago journey will be quickened from the present 16½ hr. to 16 hr. The former express will thus cover the 958 miles between these cities at an average speed of virtually 60 m.p.h., and the latter will average 56·4 m.p.h. over the shorter but more heavily-graded 902·6-mile route *via* Pittsburgh.

Proposal to Reopen the Westchester Railroad

On December 31 last the New York, Westchester & Boston Railroad was closed to traffic, but it is now proposed that traffic over it shall be resumed, as it is believed that if the following economies are effected operation will be profitable. These economies are (1) a reduction of the train service from 244 to 129 daily, (2) the permanent closing of 5 of the 36 stations, (3) reduction of overhead expenses, (4) reduction of franchise obligations and franchise and real estate taxes, and (5) reduction of payments to the New York, New Haven, & Hartford Railroad, which guaranteed payment of about ⅔ of the first mortgage bonds outstanding of the Westchester road, and would gain by the reopening. Meanwhile, a Bill to authorise the public ownership and operation of the N.Y. W. & B. RR., has been vetoed by the Governor of New York, as he considers it unsound to extend the operation of a public authority to the field of railroad operation, and that such public bodies should be created only for very special cases.

CANADA

Agenda of Special Railway Committee of Senate

At the organising meeting of the special railway committee [which as recorded in our issue of May 6, has been set up by the Dominion Senate—ED. *R.G.*] to consider joint management of the C.P.R. and C.N.R. systems, Mr. George P. Graham and Mr. C. P. Beaubien were elected Joint Chairmen. With the Government leader, Mr. Raoul Dandurand, and the Conservative leader, Mr. Arthur Meighen, the Chairmen will appoint counsel, and will endeavour to enlist the services of Colonel O. M. Bijgar of Ottawa.

The first matter into which the committee will inquire is the extent to which the two railway administrations have succeeded or failed to effect substantial economies up to the present time. Mr. Dandurand explained that the purpose of the committee was to "test co-operation, and ascertain what it had effected." The suggestions put forward by Sir Edward Beatty for unified management would then have to be tested, he continued.

QUEENSLAND

Solution of the Road Competition Problem

Speaking at Montreal recently, Mr. J. W. Davidson, until lately Chairman of the Queensland Transport Board, revealed the methods by which the problem of road competition with Government railways is solved in his part of Australia.

"We reached a point in Australia," he said, "at which trucks (lorries) were taking the cream of the trade away from the railways. And we had this situation, that the trucks were operating on State-built roads in competition with State-owned railways; it was unfair. They contributed little to the building and maintenance of the roads, they did a great deal of damage to the roads, and they did damage to the railways owned by the people as a whole. So, a few years ago, it was decided to deal with this problem, to put highway traffic on a par with railway traffic as far as fair costs were concerned.

"A scale of licences was fixed as follows: trucks hauling for hire carrying less than a ton must pay $1,140 (£228) a year. Those hauling up to 1½ tons pay $1,595 (£319) and the scale increases until those in the classification between 4½ and 5 tons pay $4,790 (£958) a year.

"It was not a popular move, but it had to be done. And now that these rates have been in operation for some time the truckers have accepted them. They realise that these licences are keeping out the competition of the price-cutting owner. They form a protection. Of course, there are a large number of exceptions to the fees. For instance trucks bringing milk and cream in from farms, others carrying agricultural produce to the local markets, cars used for charitable purposes, and trucks bringing goods to railway stations—they are all excepted. Buses, however, also pay taxes. A bus carrying 7 passengers must pay $2,200 (£440) a year. Those carrying between 10 and 20 passengers pay $5,000 (£1,000) a year."

SPAIN

Failure of Collectivisation

A circular published in the Government *Gazette* of April 28, over the Prime Minister's signature, orders the dissolution of the collectivised unit known as the Unified Electrical Services of Catalonia. This refers to the merger of light and power services, which was formed at the beginning of the civil war by the Workers' Committees, and later "collectivised" by Government Decree. For some time past dissensions between the various syndicates and unions, and between the syndicates and the Government, have made it increasingly evident that the "workers' control" would not work, and many small private enterprises had already lapsed into their old status. Now this circular is the first step to be taken officially in the sense of abolishing control by the workers and restoring private ownership. The circular should be very welcome to the Barcelona Traction Light & Power Company and the Ebro Electric Light & Power Company, in which British capital is interested. Unfortunately, the change of control is not likely to make it possible at present to improve the very restricted tramway and underground services.

VICTORIA

Miscellaneous Notes

Two heavily-laden seven-coach electric race specials were held up for 11 and 6 minutes on March 5 at an automatic signal, which was prevented from coming "off" by a swarm of ants. These, entering the steel casing surrounding the track relay mechanism through two $\frac{1}{16}$-in. holes, smothered the relay contacts and prevented movement.

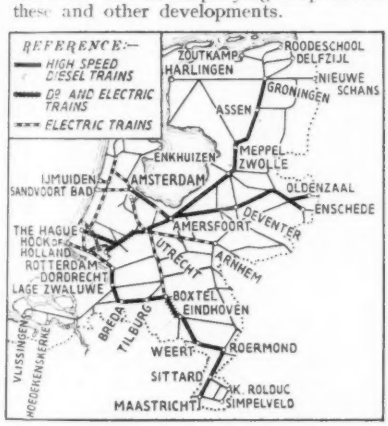
The dining car of the Spirit of Progress express provided 2,940 dinners and 3,137 breakfasts in a recent four-weekly period, these figures constituting records since 1930. More recently, however, no fewer than 3,346 breakfasts were served in 28 days, a record for all time in this State.

HOLLAND

The New Timetable

As recorded briefly in THE RAILWAY GAZETTE of April 15, a revolutionary new timetable came into force on May 15. It embodies three main alterations:—

(1) The 235 km. of line hitherto electrically worked have been extended to include the Amsterdam—Utrecht—Eindhoven line, and The Hague—Rotterdam—Utrecht—Arnhem line, giving an aggregate electrified route-kilometrage of 510 km. The accompanying map shows these and other developments.



(2) Speeds have been considerably increased by the introduction of 120-km.p.h. (maximum) diesel services to Groningen, Enschede and Maastricht, diesel units released from the newly-electrified sections being used for this purpose. The extent of these accelerations is illustrated by the following figures:—

Section of line	Former time h. m.	New time h. m.
The Hague-Groningen	3 57	2 55
Amsterdam-Maastricht	3 37	2 57

(3) The closing to passenger traffic of no fewer than 148 wayside stations and halts and the replacement of stopping-train services by more frequent combined bus and fast train services, the buses serving the intermediate places and connecting at the larger centres with more frequent fast trains running between them.

It will be seen therefore that a very up-to-date passenger transport service has been instituted throughout Holland, embracing fast electric trains in the denser traffic areas, fast diesel services for the more important longer routes, and express rail-cum-bus services to cater for both inter-town and wayside traffic throughout all country districts.

NEW ZEALAND

Drewry Shunting Tractors

Relative to the supply of nine Drewry shunting tractors to the Government Railways Department, it is noteworthy that a number of similar tractors (Drewry) were imported by the department about a year ago. These have been used chiefly at stations where shunting, although considerable, is not sufficient to warrant the expense of using a steam shunting engine. The operating costs of the tractors are low, and the system has resulted in considerable reduction of shunting work by train engines at these stations and has facilitated general working, at the same time reducing working costs. The tractors are also sometimes used for haulage of wagons between adjacent stations in order to curtail the number of stops for shunting to be made by train engines. Another use for them is on railway construction works for the haulage of spoil and material, and they are proving economical in this class of work also.

Mechanical Accountancy

The use of mechanical calculators in the Accountancy Branch of the railways has reached a very high state of efficiency, relieving stations throughout the system of practically all summarising calculations. To the battery of machines already in use has just been added an electrically-operated double listing addressograph machine, the only one of its type in the Dominion. This machine, which can print staff names and necessary details at the rate of 1,800 an hour, is used for the purpose of preparing in skeleton form the fortnightly paysheets for the staff employed in workshops and at the principal stations. The total railway staff is now over 22,000 and the advantages of transferring the very large amount of routine work involved in preparing paysheets by hand methods to the machine will be appreciated.

Record Traffic

The earnings of the railways for the week ended February 5 amounted to £184,274, the greatest sum ever earned in one week; the previous record was for the Christmas week of 1929. These earnings also exceeded those of the corresponding week last year by £36,003, an increase of 24 per cent.

It is now expected that the net returns for the current financial year will exceed the Budget estimate of £700,000. In fact, the results of this year are reminiscent of 1929-30, when the previous peak turnover was recorded and net profits reached £927,257.

SWEDEN

Government and Private Railways

The Government proposal for the purchase of the control of certain further private railways [as mentioned in our news columns of April 8—ED., *R.G.*] has now been sanctioned by the Riksdag. They include the Hälsingborg-Hässleholm (length 122 km.), Landskrona-Hälsingborg (60 km.), Kalmar (105 km.), and Gäfle-Ockelbo (38 km.) railways. These lines will be run temporarily as enterprises independent of the other lines in the State Railways system until a report is available from the committee appointed in 1936 to examine the question of the entire absorption of the private railways by the State. It is also announced that a preliminary agreement has been reached for the purchase of the majority of shares in another railway, the Landskrona-Lund-Trälleborg, which has 74 km. of line.

SWITZERLAND

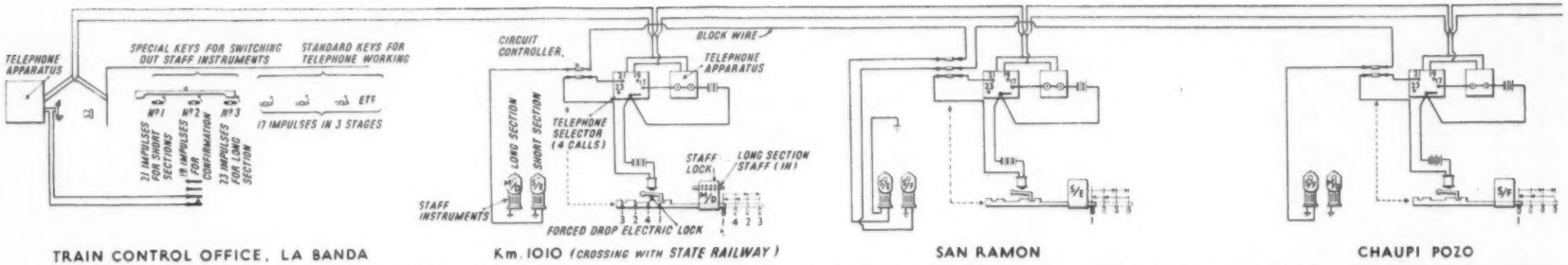
Level Crossing Protection

The draft of an international agreement regarding level-crossing signalling and protection, prepared by the League Secretariat, is being examined by a special committee of the League of Nations, at present sitting in Geneva and presided over by M. J. de Ruelle (Belgium), member of the League Commission of Communications and Transit.

District Season Tickets for Tourists

The introduction of holiday season tickets for certain districts (first referred to in THE RAILWAY GAZETTE of August 14, 1936, p. 261) has proved highly successful, and further districts have been added, with the result that all the principal tourist centres in the country are now covered. Unlimited travel is allowed on specified railways, lake steamers, and Post Office coach services, and a reduction of 30 or 50 per cent. on others, for a week. The following are the tickets now available:—

District	Third class fare (Second class steamer) Fr.
1. Vevey	16·00
2. Montreux	25·00
3. Bernese Oberland	30·00
4. Lake of Lucerne	32·00
5. Brunnen-Gotthard	21·00
6. Glarus	13·00
7. Locarno	13·50
8. Lugano	16·50
9. North-eastern Switzerland...	19·50
10. St. Gall-Appenzell	13·00
11. Central Valais (Sierre) ...	17·50
12. Chur (Coire)	18·00
13. Grisons Oberland (Disentis)	18·00
14. Davos	18·00
15. St. Moritz-Pontresina ...	30·00
16. Schuls-Tarasp	26·00



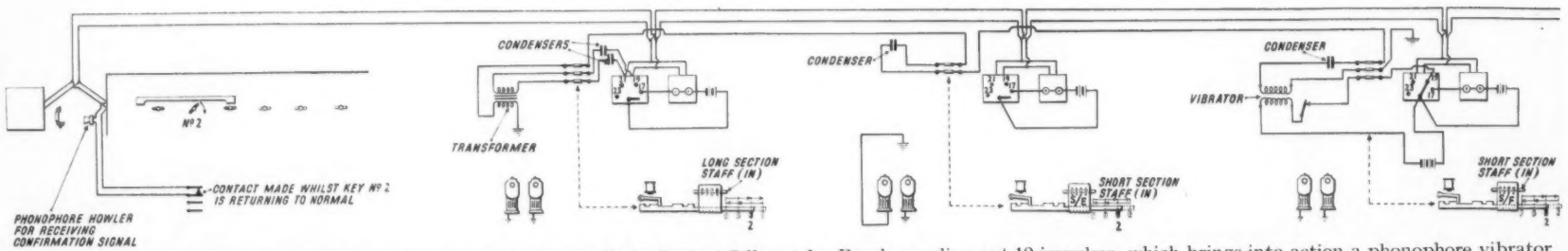
Short block sections in service. Long block section instruments disconnected and out of phase, with a long-section staff locked in corresponding staff lock in km. 1,010

To switch-out short sections a staff is removed from the short-section instruments in stations San Ramón and Chaupi Pozo, and placed in the corresponding staff locks for short-section staffs

Key No. 1 is functioned in the Train Control Office at La Banda, sending out 21 impulses

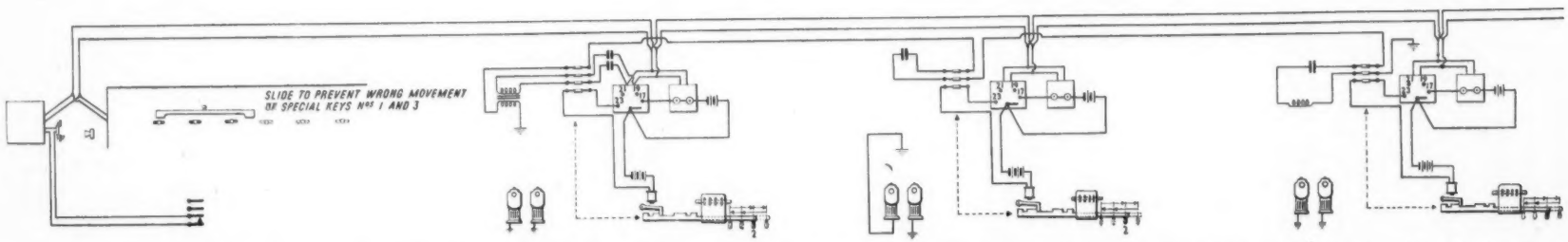
This action frees the slides of the switching-out apparatus in km. 1,010 and stations San Ramón and Chaupi Pozo, allowing them to be moved to positions No. 2, thereby locking up both the long- and short-section staffs and disconnecting all the instruments from the block wires

Fig. 1—Short block sections in service



These operations completed, No. 2 key is then functioned in the Train Control Office at La Banda, sending out 19 impulses, which brings into action a phonophore vibrator in the station Chaupi Pozo and also, through a contact on the key, connects up a phonophore howler in the Train Control Office. If all the slides of the switching-out apparatus are in their correct positions the corresponding audible confirmation signal will be received by means of the phonophore howler

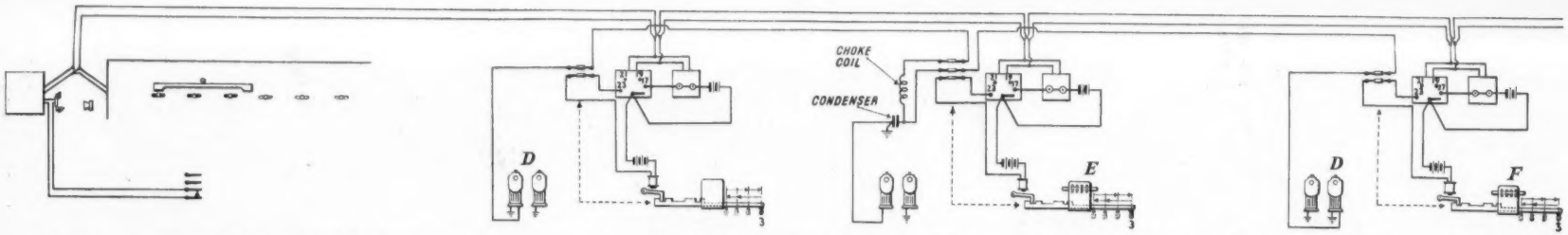
Fig. 2—Intermediate stage (confirmation of No. 2 position of all staff locks)



On receiving the audible confirmation signal in the Train Control Office, the controller moves the slide controlling the special keys to the right, thereby releasing key No. 3, which is turned and so emits the necessary 23 impulses to free the slides of all the switching-out apparatus to position No. 3

Fig. 3—Intermediate stage (long section ready for bringing into service)

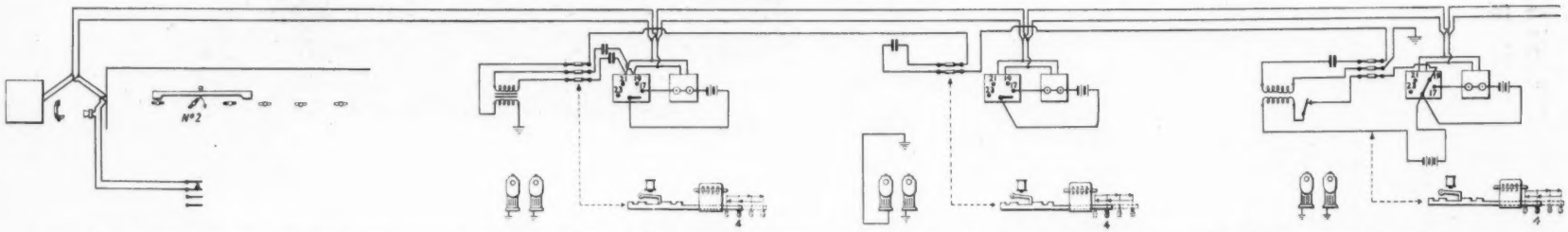
Fig. 3—Intermediate stage (long section ready for bringing into service)



The long-section staff at km. 1,010 is therefore released and can be withdrawn from the staff lock and placed in its instrument, the short-section staffs *E* and *F* remaining locked up in their respective switching-out apparatus

The short-section instruments remain disconnected from the block wires, which are joined through at San Ramón and connected to the long section block instruments *D* in km. 1,010 and station Chaupi Pozo, so that long-section working is therefore established

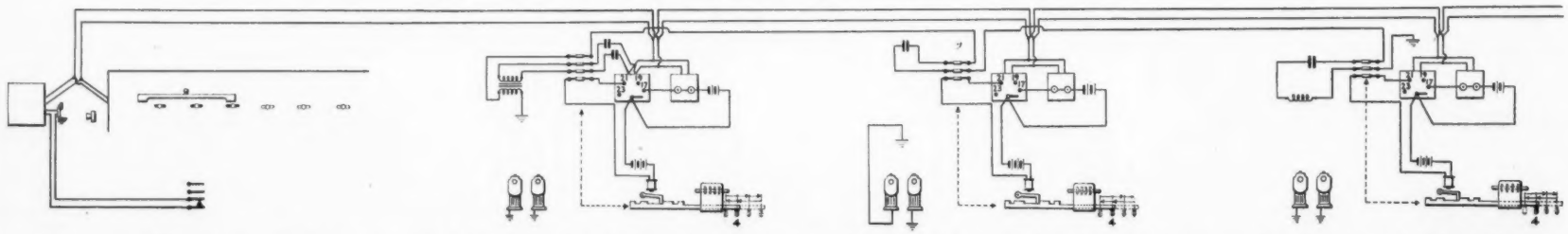
Fig. 4—Long block section in service



In order to put the short sections into service again, a staff is taken out of the long-section instrument at km. 1,010, and placed in the corresponding staff lock. The Train Control Office at La Banda then turns key No. 3 sending 23 impulses, which releases the staff locks in km. 1,010 and stations San Ramón and Chaupi Pozo, so permitting all slides to be removed to position No. 4

All staff instruments are therefore out of phase and disconnected from the block wires and the Train Control Office at La Banda then turns Key No. 2 sending 19 impulses which causes the vibrator to operate and, if all is correct, the howler to function

Fig. 5—Intermediate stage (confirmation of No. 4 position of all staff locks)



The controller then moves the slide to the left and sends 21 impulses by means of key No. 1, which allows km. 1,010 and stations San Ramón and Chaupi Pozo to move their slides to position No. 1 and so connecting up the short section instruments once more, as shown in Fig. No. 1

Fig. 6—Intermediate stage (short section ready for bringing into service)

METHOD OF SWITCHING-OUT STAFF INSTRUMENTS THROUGH TELEPHONE TRAIN CONTROL APPARATUS

(*See article on page* 982)

SWITCHING-OUT ELECTRIC TRAIN STAFF SECTIONS ON THE CENTRAL ARGENTINE RAILWAY

An interesting new circuit arrangement employing code impulses for the control

See also diagrams, Figs. 1—6, on pages 980—981

OWING to the small amount of traffic, the Central Argentine Railway decided to close San Ramón station, on its main Tucumán line, at night, and to make one block section from the signal box at km. 1,010 to Chaupi Pozo, a distance of 29 km. (18·02 miles). The line is single, and worked on the electric train staff system. To retain the standard instruments, and save the cost of an additional long section line wire, an interesting method of switching out control was devised by the Signal and Telegraph Department, the existing Western Electric selective telephone apparatus being modified to enable the District Controller at La Banda to control the switching operations at three places, as shown on the accompanying general diagram (Figs. 1 to 6).

At the La Banda office, three additional call keys were provided on the Controller's table (Fig. 7). The first emits 21 impulses and is the short section key. The second, giving 19 impulses, is used to connect the train control wires to a phonophore howler for proving that the block wire is disconnected from all staff instruments before a changeover is made; it makes contact while returning to normal. The third key emits 23 impulses, and is the long section key. An interlocking slide, moved by a small handle, between the first and third keys permits only the correct one to be operated, for long or short section working as required. The telephone selectors at the three block posts concerned were fitted with additional contacts to enable them to respond to 19, 21, or 23 impulses, as well as to their respective code call of 17 impulses for ordinary telephonic communication.

Normally, the short-section staff instruments are in use, and a long-section staff is locked in the switching-out apparatus at km. 1,010 (as shown in Fig. 1). When it is required to change to long-section working, the Controller at La Banda calls km. 1,010, San Ramón, and Chaupi Pozo on the telephone, by their respective calling keys, and gives instructions to withdraw the respective short-section staffs from the instruments at San Ramón and Chaupi Pozo, and place them in the switching-out apparatus. He then turns key 1, which sends 21 impulses to the line and operates the selectors at all three places to the required position, so that all the electric locks are released, and, providing all staffs concerned are in place, the slides of the switching-out apparatus can be moved to position 2, locking in those staffs. When this is done, the staff instruments affected are out of phase and disconnected from the block wires, which are joined together through a condenser at San Ramón, and put in connection with a vibrator at Chaupi Pozo and a transformer at km. 1,010 (Fig. 2). The Controller then receives a report from all three places that their slides are in position 2, and turns key 2 which, while returning to normal, emits 19 impulses, disconnects the line from the Controller's telephone, and connects it to a phonophore howler.

The selector at Chaupi Pozo responds to the 19 impulses and puts in operation the vibrator, which sends vibratory current through the block wire and condenser at San Ramón to one winding of the transformer at km. 1,010. Current from the other winding passes to the train control wires, causing the howler at La Banda to operate, thus advising the Controller that everything is in order for long-section working to begin. The Controller therefore moves the interlocking slide over to the long-section position and turns key 3, which sends out 23 impulses, causing the selectors at the three block posts to make contacts for electrically releasing the slides of the switching-out apparatus to move to position 3 (Fig. 3). When this operation has been completed, the series condenser is cut out and an impedance brought into circuit at San Ramón; the block wire is also joined up to the long-section instruments at km. 1,010 and Chaupi Pozo, and the long-section staff is released from the switching-

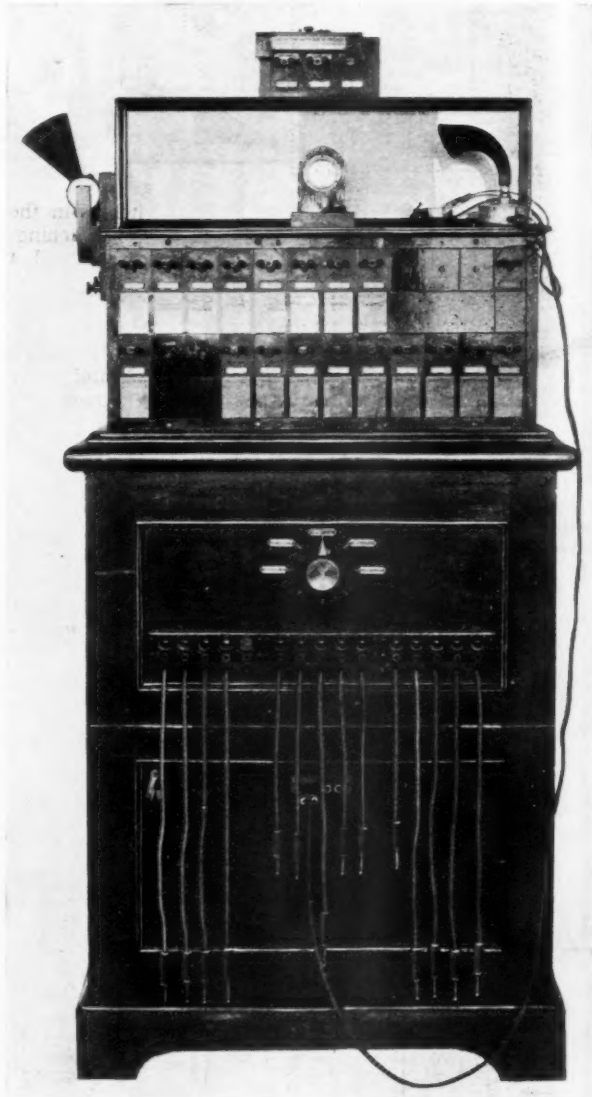


Fig. 7—Traffic controller's table at La Banda showing at the top the additional call keys and locking slide

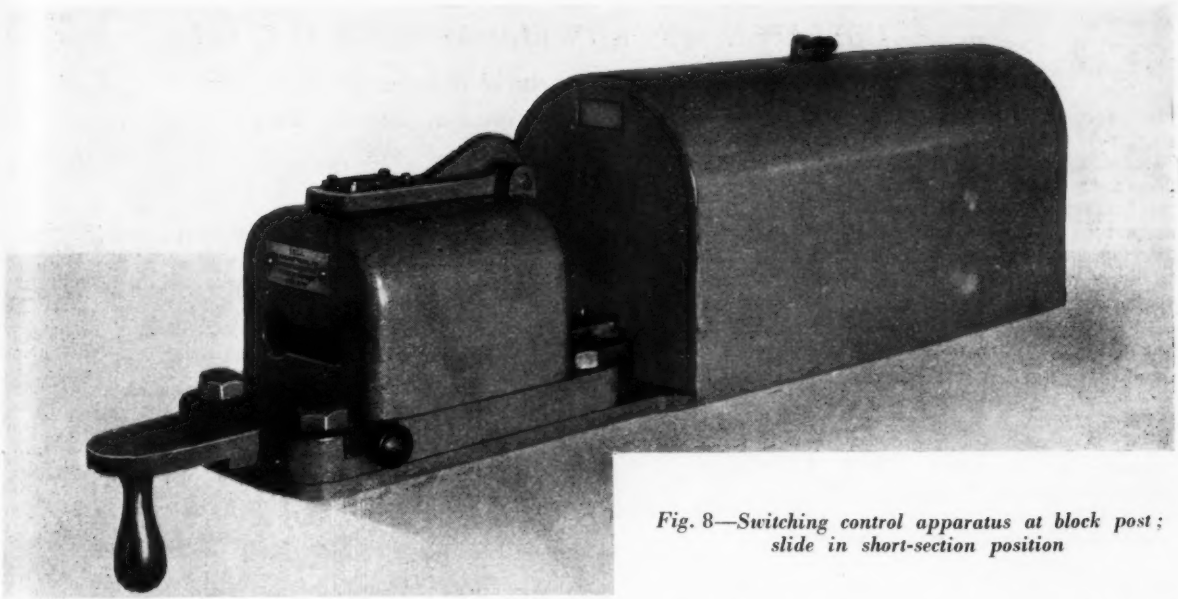


Fig. 8—Switching control apparatus at block post; slide in short-section position

out apparatus at km. 1,010, thus permitting it to be put into its instrument and through working to be brought into use (Fig. 4).

A similar procedure is followed when switching-in the short section instruments, but the slides of the switching-out apparatus must be released from positions 3 and 4 before they can be moved to position 1 again, to free the short-section staffs previously locked therein (Figs. 5, 6 and 11). The electric locks have forced drop in all four positions, and require 21 impulses on the selector to release them to move the slides between positions 1 and 4, or 4 and 1; and 23 impulses to release them for the movement between positions 2 and 3, or 3 and 2. Should any block operator not go through the proper sequence of movements, the circuit for the howler is not completed and the latter does not function. The Controller is therefore advised at once, and does not give the necessary release for the other operators to complete their switching movements.

There being an impedance in the line at San Ramón, with a condenser to earth, when through working is in force, the howler current is diverted through the latter if the slide of the switching-out apparatus is left in position 3 when it should be in position 4 or 2. The earth connection of this condenser is also common to one of the staff instruments, so that should it ever become disconnected, that instrument would not operate and attention would thus be called to the fault.

Fig. 7 is a view of the Controller's telephone apparatus, showing at the top the three additional calling keys with the interlocking slide between them, which can be secured by means of a padlock in either position; also the phonophore howler, conveniently situated some distance from the Controller. The slide bears the following instructions: "This slide must not be moved from one side to the other until the confirmation key has been turned and the howler has functioned."

The switching-out apparatus used at the three block posts is shown in Figs. 8 and 9; in the former with the slide in position 1 for short-section working, and in the latter, with the slide in position 3 (cover removed) for long-section working, and the short-section staff locked in. This installation has been in service for over a year with very satisfactory results.

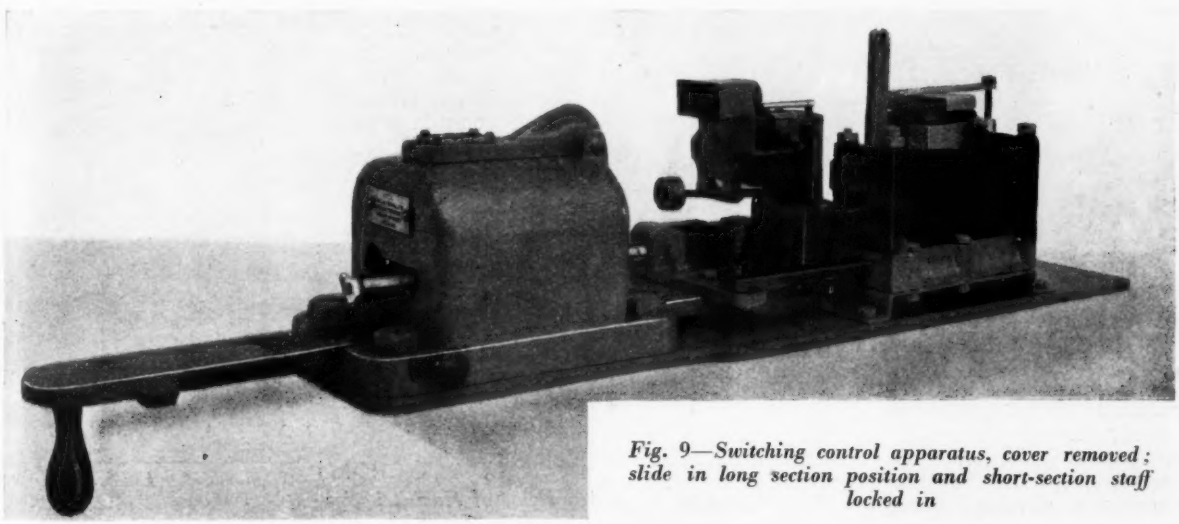


Fig. 9—Switching control apparatus, cover removed; slide in long section position and short-section staff locked in

XUM

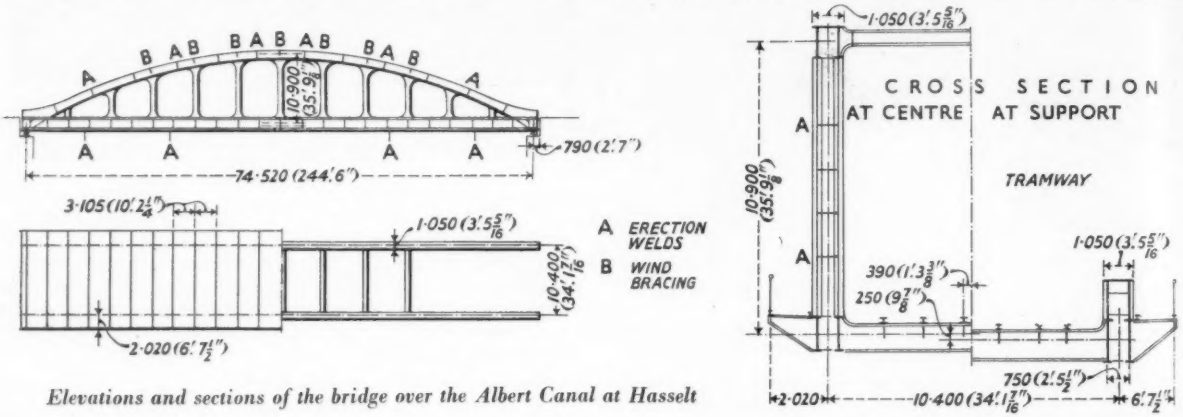
COLLAPSE OF A WELDED BRIDGE

From personal observations, a structural engineer discusses the failure of a bridge over the Albert Canal at Hasselt, Belgium

ON March 14, 1938, the road and tramway bridge over the Albert Canal at Hasselt, Belgium, collapsed within a period of six minutes. When failure began, there were on the bridge a tramcar and several pedestrians, but all were able to reach the bank, and there was no loss of life. A commission has been appointed by the Belgium authorities to inquire into the cause of the failure.

As shown by the drawings the bridge, of 74·52 m. (244 ft. 6 in.) span, carried a single-line tramway, a roadway, and footways on cantilever brackets at each side.* The structure was built on the Vierendeel system, which is characterised by the absence of diagonals, vertical struts alone being used, and these being connected rigidly to the upper and lower chords. This type of girder, named after Professor Vierendeel, is popular in Belgium, and is used in about 50 bridges over the Albert Canal alone. From the constructional standpoint, these girders have been considerably improved in Belgium during recent years by the general introduction of welding which is superior to riveting in this application. Much scientific and experimental work has been accomplished in this field, and as long ago as the year 1933, the writer saw fatigue tests in progress on test pieces of the largest dimensions in Professor Dustin's laboratory at the University of Brussels. The distribution of stress in the rigid joints of such bridges was also thoroughly investigated in welded constructions.

The bridge at Hasselt differs from most of the other bridges over the Albert Canal in that its chords are of box-type, with two webs. The verticals consist of pairs of broad-flange I-beams, 700 mm. (2 ft. 3½ in.) in depth, set on 750 mm. (2 ft. 5½ in.) centres, corresponding to the distance between the web plates of the upper and lower chords respectively. This permits of a neat connection between the struts and the chords. The lower wind bracing, below the deck, consists of the usual St. Andrew's crosses of rolled sections; while the upper wind bracing, at the centre portion of the bridge, consists of simple rolled steel joists as shown in the sectional view. It seems, however, that this upper wind bracing serves only to stiffen the upper chord against buckling, there being neither diagonals nor rigid connections in the plane of the upper chord. The bridge, which weighed 646 *tonnes* (635¾ tons) had been in service about one year at the time of its failure.

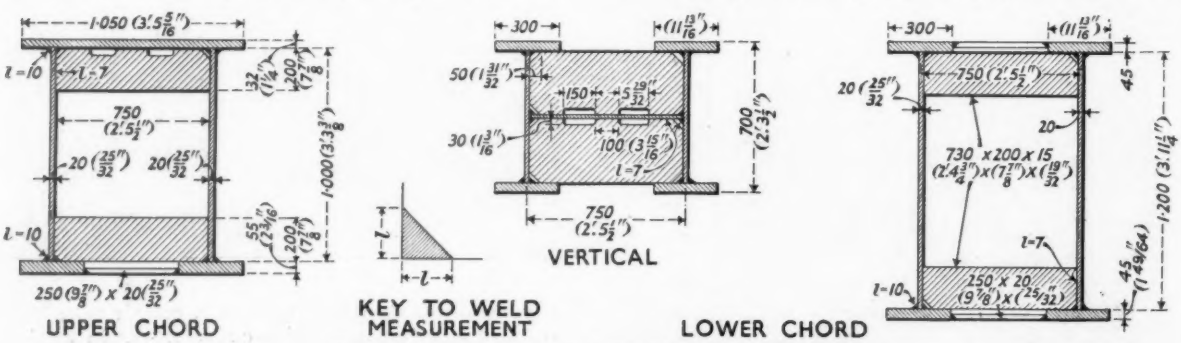


Elevations and sections of the bridge over the Albert Canal at Hasselt

From the general view of the collapsed structure it will be seen that the bridge broke into three main parts, the central portion lying with many fractures under water and inaccessible to inspection. It is therefore hardly possible to suggest where the first break occurred which led to further destruction. The following memoranda are, however, based on the writer's observations on the spot:—

(1) The brittleness of the steel is indicated by the form of the fractures and can be recognised in the accompanying illustrations. At most of the fractures complete breakage occurred without appreciable preliminary deformation. Where deformation occurred it generally consisted only in bending of plates perpendicular to their

* See *Ossature Métallique* (Brussels) for September, 1936



Cross-section of chords and uprights of Hasselt bridge

General view of the collapsed bridge, looking towards Hasselt

planes. Such bending can occur even in brittle steel. With the naked eye, it was not possible to detect any appreciable extension of the material before fracture, or any of the contraction which is characteristic of breaks in ductile steel. The fractures themselves, vitreous in appearance and reminiscent of porcelain or cast iron rather than mild steel, confirmed the impression that the St 42 steel* employed was decidedly brittle.

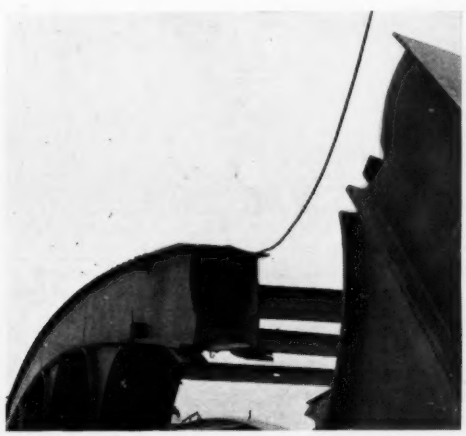
(2) It seems that there must have been considerable internal stresses in the material, apart from the effects of its own weight and working load. The cracks shown in one of the pictures could be explained by such stresses, *e.g.*, residual stresses set up by the rolling of the material; stresses arising from the welding operations; or, under unfavourable conditions, addition of stresses due to both causes.

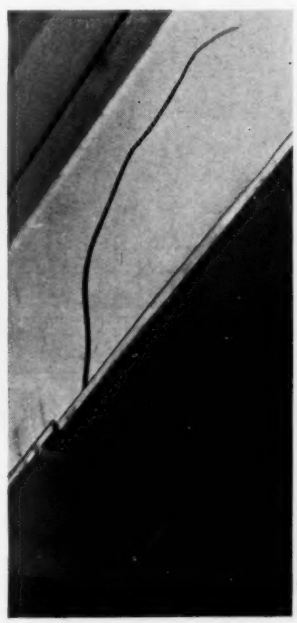
* Of 42 kg. per sq. mm. (26.67 tons per sq. in.) minimum tensile strength

(3) Most of the fractures seem to have been caused by impact and shear, probably by the parts striking the towpaths. This, however, only partly explains the form of the fractures, the components not subjected to direct impact being exposed to bending, torsion, &c., without undergoing the corresponding deformation at the fractures.

(4) Some of the welded connections which could be examined at close quarters were defective in appearance at places, showing irregular surfaces, insufficient penetration at the edges, undercutting and other imperfections. It would be interesting to know whether these connections were examined by X-rays, or what other method of testing was prescribed. Other welded joints, however, were of very good appearance. One of the pictures shows clearly that fracture occurred about 20 cm. ($7\frac{7}{8}$ in.) away from the weld, although breakage at the weld might have been expected from its structural arrangement and position at the end of the rounding between the upright and the chord. Another picture shows that the crack through the nearer flange of the lower chord occurred about 15 cm. (6 in.) away from the welded joint of the cover strap, whereas the fracture in the other half of the chord was through the cover strap, proving the perfection and full strength of the weld in both instances.

From his observations on the spot, and without claiming that these were complete, the writer is inclined to criticise certain details of the design of the bridge, the quality of the steel and the execution of the welds. Which of these defects, alone or in combination with others, may have been responsible for the collapse, the official inquiry will possibly reveal.





Above : Sharp-edged fracture in the upper chord, showing no distortion. Note fracture in upper chord at a considerable distance from the weld

Left : Bending of plates perpendicular to their plane at the fracture in the upper chord

Right : Crack in the lower chord through flanges and webs

THE BIHTA ACCIDENT

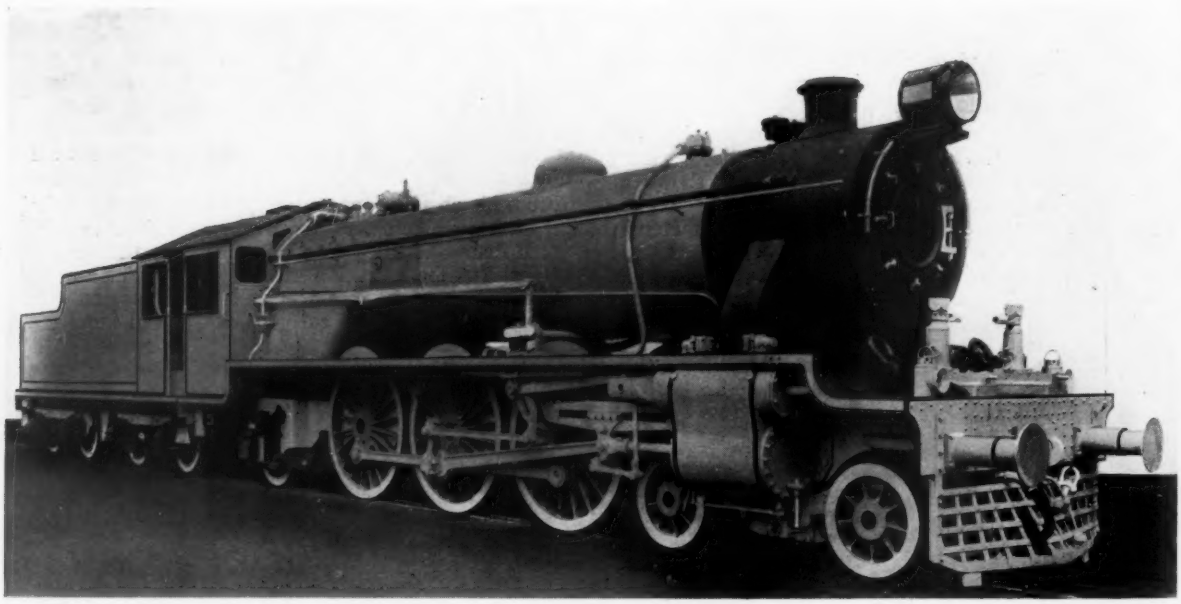
A brief description of the "XB" type of locomotive and of the permanent way concerned

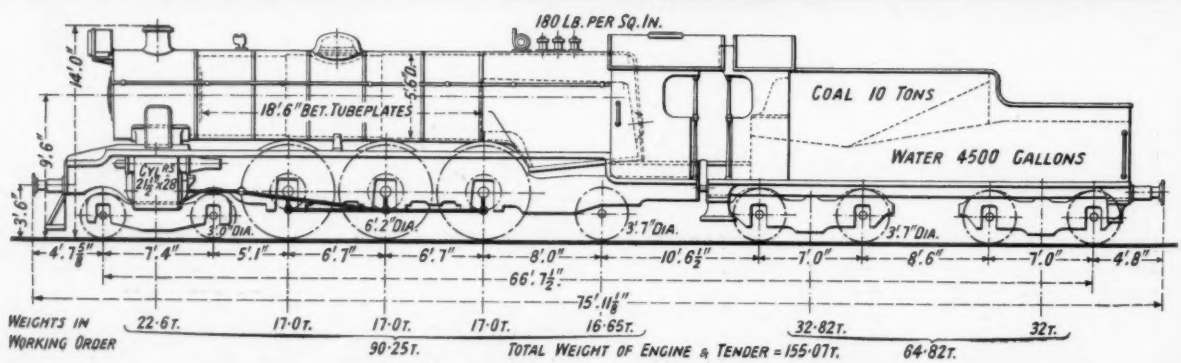
IN view of the recommendation of Sir John Thom, who held the judicial inquiry into the Bihta derailment of July 17 last, on the East Indian Railway, that the design and purchase of "XB" engines should be the subject of an inquiry, we have received many requests for details of this type of locomotive, one of which was involved in the accident.* We are therefore reproducing a photograph and outline drawing of this type of locomotive, together with sections of the permanent way at and approaching the site of the derailment.

The first series of "XB" 4-6-2 engines was built in 1927 and shipped from this country for service on the East Indian, Eastern Bengal, and Great Indian Peninsula Railways. When built, they conformed to a new standard, and a salient feature of the design was the wide firebox and large grate area adapted for burning low grade fuel. The following are the main particulars:—

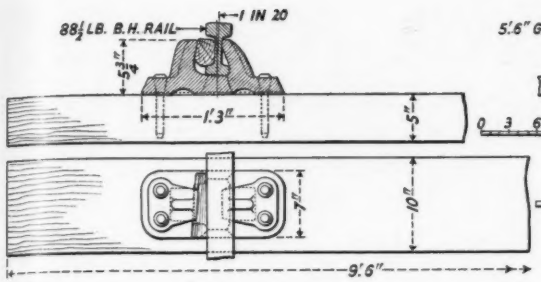
Cylinders, dia.	21½ in.
Piston stroke	28 in.
Piston valves, dia.	12 in.
Wheels, coupled, dia.	6 ft. 2 in.
,, bogie, leading	3 ft. 0 in.
,, ,, trailing	3 ft. 7 in.
Wheelbase, rigid	13 ft. 2 in.
,, engine	33 ft. 7 in.
,, total engine and tender	66 ft. 7½ in.
Boiler, working pressure	180 lb. per sq. in.
Heating surface—	
Firebox	198 sq. ft.
Tubes	1,642 sq. ft.
Total	1,840 sq. ft.
Superheater	463 sq. ft.
Combined heating surfaces	2,303 sq. ft.
Grate area	45 sq. ft.
Weight on coupled wheels in working order	51 tons
Weight on leading bogie in working order	22½ tons
Weight on trailing wheels in working order	16¾ tons
Total	90¼ tons

* The report of the judicial inquiry by Sir John Thom was the subject of an editorial article on page 824 of THE RAILWAY GAZETTE of April 29, and a further reference appeared in our issue of May 13, page 947

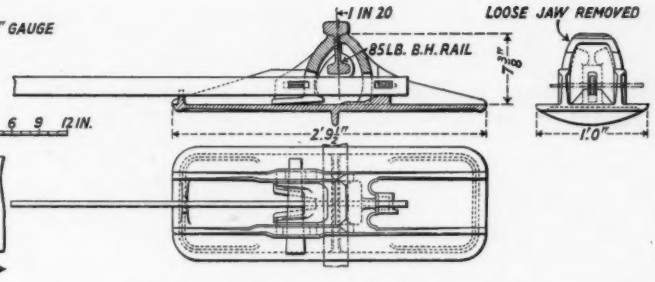




General view and outline dimensional drawing of "XB" class locomotive



Sleepered track with 88½-lb. B.H. rail

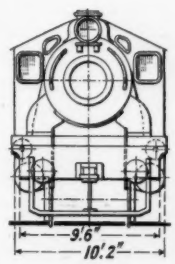


Denham & Olphert plate sleeper track with 85-lb. B.H. rail

These engines develop a tractive effort, at 90 per cent. boiler pressure, of 28,335 lb.; ratio of adhesion at 90 per cent. = 4.

In his report on the accident to the Railway Board the Senior Government Inspector said that locomotive No. 1916, which was hauling the train, had "a strong proclivity for violent hunting at high speeds" and this tendency on the part of "XB" locomotives appears to have been generally admitted and was the reason for a speed limitation being imposed upon them. After the derailment the track was found to have been distorted for several inches on each side from the correct alignment. This distortion was on sleepered track, but the actual derailment took place on Denham & Olphert plate sleeper track which was rigidly held both horizontally and vertically on the flood opening bridge where, apparently, the engine left the rails.

It may be observed that the "XB" engines have bearing springs above the axleboxes, a departure from the previous Indian railway practice of underhung springs. Compensating gear is also provided, and a peculiarity is that the pivots of the compensating beams are below the axle centres, necessitating a comparatively long connecting link from the end of the spring above to the compensating beam below the level of the axle.



Front end view of engine

The Worcester Railway

THE Worcester Railway is a short mineral branch line linking the Lowesmoor vinegar works of Hill, Evans & Co. Ltd., with the G.W.R. at Shrub Hill, Worcester. The firm was established in 1830 by William Hill and Edward Evans, and 40 years later applied to Parliament for powers to build this railway. The result was the passage on August 1, 1870, of the Worcester Railways Act, which authorised 2 furlongs 9 chains of line, subject to a speed limit of 4 m.p.h., but conferred no powers for the compulsory purchase of land. The undertaking was described in the Act as the Worcester Railways, and the proprietors were named as the partners for the time being in Hill, Evans & Co. The firm has often been called the Worcester Railway Company, but the Act did not incorporate a statutory company. A maintenance agreement regarding the railway was made with the G.W.R. on May 28, 1872, and this still continues to operate. The owning firm was converted into a limited company on May 31, 1900, and this company presumably replaces the old partnership as proprietor of the railway.

G.W.R. locomotive drawing a train on the Worcester Railway across Shrub Hill Road, Worcester. The road semaphore signals will be noted

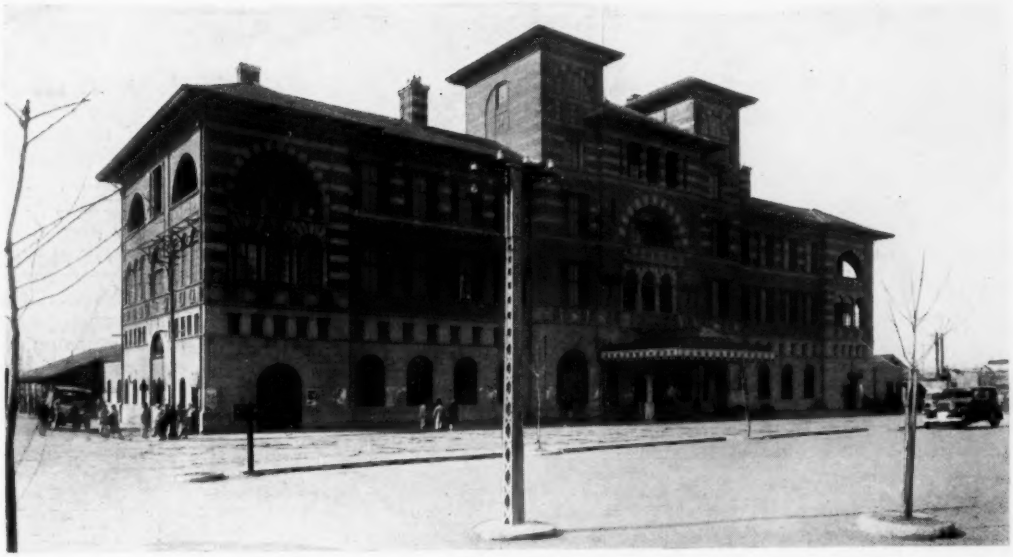
An unusual feature of this railway is its semaphore signalling system at the point where it crosses Shrub Hill Road, Worcester, on the level. For the protection of road traffic two ordinary semaphore railway signals are placed in the footpath and are kept normally in the off position. When a train is due to pass over the roadway they are set at danger by hand by a member of the staff working the train across. The lever operating each signal is controlled by a key so that the mechanism cannot be tampered with. The signals are also interlocked with a near-by ground frame which cannot be used to permit of rail traffic until the road signals are placed at danger. We are indebted to Mr. F. Richards, the Secretary of Hill, Evans & Co. Ltd., for verifying various details regarding this railway, and also for kindly affording us facilities for examining it when we were in Worcester recently.

War Damage to Railway Buildings in Shanghai

Right: Damage to reinforced concrete roof of the Nanking-Shanghai Railway administration office building

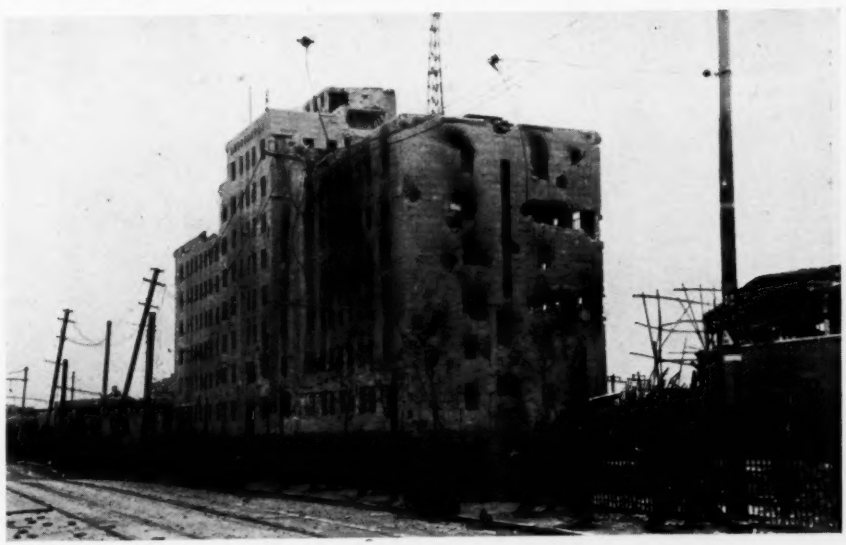
Left: The burnt-out shell of the North station, as seen from the roof of the administration offices

Right: A vivid impression of the damage to the platforms, roofing and permanent way at the North station

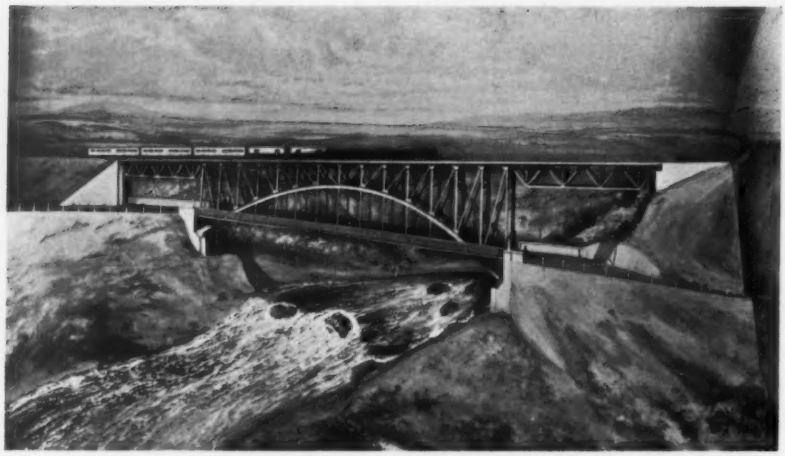


The original S.N.R. administration offices built over the North station prior to bombing in 1932

Above: left: The combined building after bombing in 1932*; right: the new administration building as subsequently built separately, and as it appeared before the outbreak of the present war*

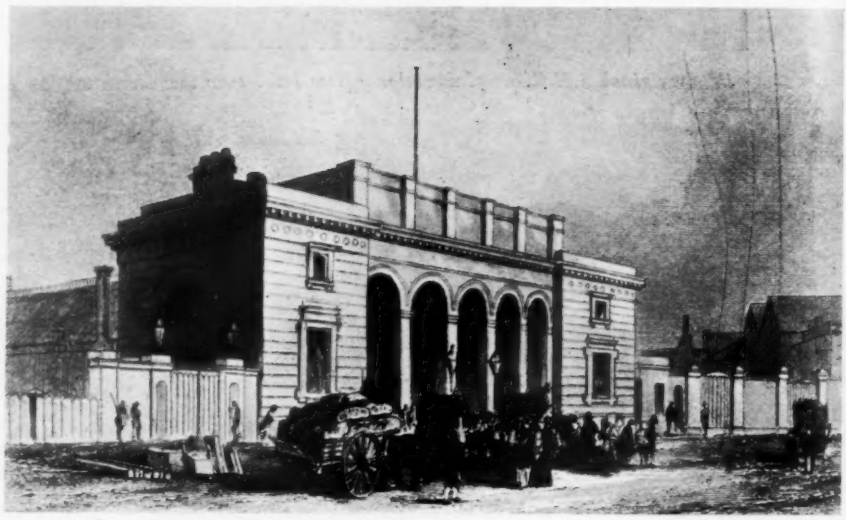


Right: Damage after the recent prolonged and intensive bombardment to the administration building. In spite of being a remarkable target, the building as a whole was not demolished, due to its heavy reinforced concrete construction



Left: In the I.C.I. pavilion at the Glasgow Empire Exhibition are seven dioramas, one of which illustrates the use of the products of Nobel Chemical Finishes on the rolling stock of the Kenya & Uganda Railway. The central feature of this diorama, which we reproduce alongside, is a train crossing a bridge on the Upper Nile. On the righthand side of the diorama is a moving band of photographs showing various stages in the manufacture, shipment, and application of these paints and enamels

Right: Reproduction of an engraving entitled "South Western Railway Station, Nine Elms." This was the first London terminus of the L.S.W.R. The centenary of opening of the first section of this railway, from Nine Elms to Woking Common, occurs tomorrow. Experimental trips had been run on May 12 and 19, and the opening to public passenger traffic on May 21 was without ceremony. The company was incorporated as the London & Southampton Railway Company on July 25, 1834, and actually retained this title until June 4, 1839, when, in deference to the wishes of Portsmouth, the more appropriate title of London & South Western Railway was adopted



Left: An interesting early construction photograph taken during the building of the District Railway in 1867. It will be noticed that the contractors used plate rails capable of taking ordinary road carts. The first section of the District Railway was opened in 1868, and the line then extended eastward from Kensington only as far as Westminster

RAILWAY NEWS SECTION

PERSONAL

His Excellency the Governor General has been pleased to nominate Mr. B. M. Staig, C.S.I., I.C.S., M.L.A., to be a member of the Standing Finance Committee for Railways, India. Mr. Staig will be the Chairman of this committee and will also be an *ex-officio* member of the Central Advisory Council for Railways.

Mr. Joseph Harvey Gardner has retired from the position of Chief Mechanical Engineer of the Tanganyika Government Railways.

From *The London Gazette* of May 3: Territorial Army, Royal Engineers, Engineer and Railway Staff Corps: Captain William Ewart Blizard, B.Sc., M.Inst.C.E. (late Indian Army Reserve of Officers), to be Major (May 4).

The late Mr. J. M. Rendel, Chairman of the Assam—Bengal Railway, who died on August 27 last year at the age of 83, left estate valued at £16,952 (£14,208 net). An obituary notice appeared in our issue of September 3.

INSTITUTE OF TRANSPORT

The following corporate members and associate members were elected during April:—

Members

Mr. J. B. Elliot, Assistant General Manager, Southern Railway.

Mr. R. G. James, General Manager, East Midland Motor Services Limited.

Mr. A. S. Quartermaine, Deputy Chief Engineer, Great Western Railway.

Mr. Harold Young, Chief Mechanical Engineer, New South Wales Government Railways.

Associate Members

Mr. W. H. Armstrong, Assistant Chief Mechanical Engineer, New South Wales Government Railways.

Mr. A. O. Chalmers, Deputy General Manager, Salvador Railway.

Mr. A. S. Davison, of the Crewe Chemical Laboratory, L.M.S.R., has been awarded the Herbert Jackson Medal and Prize for a paper on the "Chemical and Biological Examination of Water Supplies." This medal has been struck by the company in memory of the late Sir Herbert Jackson, K.B.E., F.R.S., an original member of the L.M.S.R. Advisory Committee on Scientific Research.

Mr. C. G. W. Cordon, who, as announced in THE RAILWAY GAZETTE of April 22, has been appointed to succeed Mr. H. N. Colam as Agent of the Madras & Southern Mahratta Railway, joined that line in May, 1914, as an Assistant Traffic Superintendent, after having had considerable previous experience on the former Great Northern Railway, on the Beira & Mashonaland, and Rhodesia Railways, on the Nigerian Government Railway, and also on the Cuban Central Railway. During the war he served with the Mesopotamian Expeditionary Force on railways. On the M. & S.M.R. Mr. Cordon was promoted first to be District Traffic Superintendent, and then as Deputy Traffic Manager, Commercial and Movement. He was also appointed Statistical Officer and for a time served as Chief Controller of Stores prior to being appointed Deputy Agent. He was finally promoted to be Chief Commercial Manager. During 1937 Mr. Cordon officiated as Director of Traffic, Railway Board and was subsequently placed on special duty in the office of the Railway Board in connection with the Indian Railway Enquiry Committee report.

Mr. C. G. W. Cordon

Appointed Agent of the Madras & Southern Mahratta Railway

Mr. A. R. Thomson, who, as recorded in our issue of April 8, has been appointed to be District Controller, Liverpool (Lime Street), L.M.S.R., as from June this year, entered the service of the former London & North Western Railway in 1904. After experience in the Northampton and Liverpool Districts, he was appointed Outdoor Assistant to the District Superintendent, Manchester, in 1912. During the war, Mr. Thomson was on active service with H.M. forces from 1915-16, and on his return to the L.N.W.R. was temporarily attached to the District Superintendent, London. In January, 1919, he was appointed Railway Representative at Prees Heath Camp, during demobilisation, holding the position until February, 1920. In the latter year he was appointed Outdoor Assistant to the District Superintendent, Birmingham, and two years later was transferred to the office of the L.N.W.R. District Superintendent, London, in a similar capacity. Mr. Thomson went to Willesden in 1924 as Assistant to the District Controller, and in April, 1930, was appointed Assistant District Controller, Liverpool. In October of the same year he returned to Willesden as Assistant District Controller. Mr. Thomson was appointed District Controller, Rugby, in October, 1931, and Outdoor Assistant to the Divisional Superintendent of Operation, Crewe, in 1937.

Mr. S. T. Clayton, whose appointment as District Locomotive Superintendent, Bank Hall, L.M.S.R., was recorded in our issue of May 13, received his technical training at the Horwich works of the former Lancashire & Yorkshire Railway, and at the Horwich Technical Institute. In 1917 he was appointed Foreman Fitter at Low Moor locomotive shed, becoming subsequently Locomotive Shed Foreman at Sowerby Bridge in 1919, and Running Shed Foreman at Lower Darwen in 1920. Mr. Clayton was appointed Assistant District Locomotive Superintendent at Carlisle (Midland Division, L.M.S.R.) in 1928. While in that post he acted from April to December, 1934, as Chairman of the Locomotive Operations Analysis Committee, Midland and Central Divisions. In January, 1935, he was transferred to Manchester as

Assistant (Engine Utilisation and Accommodation) in the office of the Divisional Superintendent of Operation. Mr. Clayton was appointed Assistant (Locomotive Maintenance Section) in the office of the Divisional Superintendent of Operation at Derby on August 1 last year. This is the position from which he has now gone to Bank Hall as District Locomotive Superintendent.

The late Colonel Woodbine Parish, C.M.G., C.B.E., whose sudden death on May 11, at the age of 76, we recorded briefly last week, was born in Buenos Aires (where his father was Consul-General), but came with his parents to England at the age of 9. He received his education at Cheltenham, where he proved himself a notable athlete, and then entered the firm of Messrs. Deloitte, Dever, Griffiths & Co., auditors. From 1887 to 1891 he was in the Secretary's office of the Buenos Ayres & Rosario Railway, and in the latter year was appointed Secretary of the Entre Rios Railways. He visited South America in 1899 with the late Lord Farrer to examine and report upon the company's affairs, and was elected a Director a year later, remaining on that board until 1912. In 1900, also, he joined the boards of the Buenos Ayres, Ensenada & South Coast, and the Buenos Ayres Western Railways, and in 1901 that of the Great Western of Brazil Railway. He was elected a Director of the Central Uruguay Railway of Montevideo, and of the Buenos Ayres Great Southern in 1906. Col. Woodbine Parish was a Director of the foregoing companies until his death, and became Chairman of the Buenos Ayres, Ensenada & South Coast. He was also on the board of the Bahia Blanca & North Western Railway, and Chairman of the Bahia Blanca Waterworks Co. Ltd., the Argentine Eastern Land Co. Ltd., and the Buenos Ayres Southern Dock Co. Ltd. Colonel Woodbine Parish did much for good relations between Great Britain and the South American republics, and we refer further to his activities in this connection in an editorial note on page 969.

The late Colonel Woodbine Parish, C.M.G., C.B.E.

Director of the B.A.G.S., B.A. Western, Central Uruguay, G.W. of Brazil and other South American Railways

The funeral took place at Hove on May 14, when, in addition to family mourners and relatives the following were present:—

Sir Eastman Bell, Sir Sam Fay, Mr. N. F. E. Grey (Secretary, Buenos Ayres Great Southern and Buenos Ayres Western Railways), Mr. Norman Leslie (representing the Argentine Club, and the Latin-American Society of Great Britain), Mr. W. H. A. Goudge (representing the Central Uruguay Railway of Monte Video), and Mr. Robert Graham (formerly Secretary, B.A.G.S. and Buenos Ayres Western Railways).

Mr. P. W. Weaver, who, as recorded in our issue of March 4, retires at the end of this month from the position of Traffic Manager, Egyptian State Railways, has seen 32 years of railway service in Egypt. He is the son of the late Mr. Henry Weaver, a former Station Superintendent at Paddington, Great Western Railway, and joined that company himself in 1896, receiving his early training in the Traffic and Goods Departments at Reading, High Wycombe, Basingstoke, and Winchester. He took up his first railway appointment in Egypt in 1906, becoming Assistant Traffic Superintendent at Tanta, the principal railway centre of Lower Egypt. During the war he was stationed at Kantara, where he was in charge of all military movements on the northern section of the Suez Canal in connection with the defence of Egypt and the Gallipoli and Palestine campaigns. In 1919 he was transferred to Cairo as Assistant Goods Manager, and was appointed Goods Manager in 1922. Mr. Weaver succeeded Mr. Burton Pearson as Traffic Manager in 1929.

Dr. Anton Schrafl, who has relinquished the presidency of the Swiss Federal Railways General Management in favour of M. Hans Etter (see this section last week), has been appointed Manager of the Office Central de Transports Internationaux par Chemin de fer. Dr. Schrafl graduated as a Civil Engineer in 1896, and joined the Rhaetian Railway in 1898 to superintend construction of the line from Reichenau to Ilenz. In 1902 he entered the service of the Gotthard Railway as Assistant to the Chief Engineer, in which position he took a leading part in the execution of many important

Mr. P. W. Weaver

Traffic Manager, Egyptian State Railways, 1929–38

Dr. Anton Schrafl

President of General Management, Swiss Federal Railways, 1926–38

The late Mr. B. Carpenter

Dock Manager, Cardiff and Penarth, Great Western Railway, 1933-38

works. The Gotthard Railway was taken over by the Swiss Federal Railways in 1909, and in 1911 Dr. Schrafl was nominated a member of the management of the Fifth (Lucerne) District of the S.F.R. He became Vice-President of the district management in 1917, and subsequently President. A vacancy occurring in the general management in 1923, Dr. Schrafl was appointed to fill it as General Manager (Construction and Working). He assumed the office of President of the General Management in 1926. Two developments during his presidency are inseparably connected with Dr. Schrafl's name, that is, the extension of electrification to cover all the main lines, and the reorganised administration.

We regret to learn of the death in Zurich, at the age of 59, of Dr. Robert Herold, former General Manager of the Swiss Federal Railways, Third Division, and Swiss representative in various international organisations. Dr. Herold, who was well known outside Switzerland as an expert on railway economics, was entrusted by the Federal authorities with the preparatory work in connection with the proposed reorganisation of the Federal Railways and assistance to distressed private railways.

South African Staff Changes

Mr. J. S. de V. von Willich, System Manager, Durban, has been transferred to Cape Town to succeed Mr. W. F. Veary as System Manager. Mr. Veary's retirement was recorded in our issue of April 8.

Mr. E. X. Brain, System Manager, Kimberley, has been transferred to succeed Mr. von Willich as System Manager, Durban.

Mr. J. G. K. Agnew has been appointed System Manager, Kimberley.

The late Mr. W. A. Jepson, Permanent Member of the Railway Rates Tribunal, 1921-31, whose death on February 21 this year was recorded in our issue of February 25, left estate valued at £22,388 (£17,453 net.).

Mr. W. Howard-Williams, Chairman of the Central Argentine Railway, and a Director of the Buenos Ayres & Pacific Railway, has been elected Deputy Chairman of the latter company.

We regret to record the sudden death on May 14 of Mr. B. Carpenter, Dock Manager, Cardiff and Penarth Docks, Great Western Railway. Mr. Carpenter entered the service of the former Barry Docks & Railway Company in 1900, and after several years' experience in the Shipping Superintendent's Department was transferred to the staff of the General Manager. At the time of amalgamation with the Great Western Railway Mr. Carpenter, who was then Assistant to the General Manager, was appointed General Assistant to the Chief Docks Manager, G.W.R., from which position he was promoted to be Joint Assistant Docks Manager in 1926. In 1932 he was appointed Acting Docks Manager, Cardiff and Penarth, and was confirmed in that position in 1933. Mr. Carpenter had been Chairman of the Barry Pilotage Authority, Independent Chairman of the Joint Control Board of the Shipping Federation, and a member of the Cardiff (Ministry of Labour) Port Employment Committee.

Indian Railway Staff Changes

Mr. A. C. Dunsdon has been confirmed as Deputy Agent, E.I.R., as from March 26.

Mr. C. F. White, at present officiating as Chief Mechanical Engineer, G.I.P.R., has been confirmed as Deputy Chief Mechanical Engineer.

Mr. R. Whitworth has been appointed to officiate as Signal Engineer, E.B.R., as from March 9.

Mr. B. G. Smith, Divisional Superintendent, E.I.R., has been permitted to retire from Government service as from March 15.

Mr. E. L. Manley, Chief Engineer, E.B.R., has been granted six months' leave as from April 7.

Mr. W. L. D. Martyn, Officiating Deputy Agent (Organisation), N.W.R., has been granted seven months' leave as from April 4.

Mr. F. V. Mahony, Deputy Controller of Stores, N.W.R., has been granted six months' leave as from April 19.

Mr. J. D. Westwood, Agent, B. & N.W. and R. & K.R., has been granted six months' leave as from April 13.

Mr. W. E. G. Bender, C.I.E., M.Inst.C.E., has been appointed to act as Agent in place of Mr. Westwood.

Mr. J. R. Izat, has been appointed to act as Chief Engineer, *vice* Mr. Bender.

Mr. A. J. A. Dyer has been appointed to act as Deputy Agent, R. & K.R., Izatnagar, in place of Mr. Izat.

Mr. J. A. Smith, Locomotive and Carriage Superintendent, B. & N.W. and R. & K.R., has been granted two years' leave preparatory to retirement as from March 24.

Mr. W. T. S. Cairns has been appointed to act as Locomotive and Carriage Superintendent, *vice* Mr. Smith.

Mr. R. Hannay, Traffic Manager, B. & N.W. and R. & K.R., has been granted nine months' leave as from March 10.

Mr. G. A. Rowlerson has been appointed to act as Traffic Manager in place of Mr. R. Hannay.

Mr. R. G. Hughff, Officiating Deputy Chief Mechanical Engineer, Jamalpur, E.I.R., has been granted nine months' leave as from March 31.

Rai Bahadur N.C. Ghosh has been confirmed as Divisional Superintendent, E.I.R., as from March 15.

Mr. K. M. Abraham has been appointed to officiate as Chief Accounts Officer, E.I.R., as from March 10.

Mr. G. E. Cuffe, Agent, A.-B.R., has been granted 6½ months' leave as from March 29, resulting in the following other changes, with effect from the same date:—

Mr. F. J. Salberg, M.B.E., V.D., Chief Engineer, has been appointed to act as Agent.

Mr. L. F. W. Nolan, Deputy Chief Engineer, has been appointed to act as Chief Engineer, and

Mr. Q. Z. Husain has been appointed to act as Deputy Chief Engineer.

Burma Railways Staff Changes

Mr. A. G. Dunn, District Locomotive Superintendent, has been appointed to officiate as Deputy Carriage and Wagon Superintendent as from February 25.

Mr. H. Rose, Deputy Superintendent of Stores, has been appointed to officiate as Superintendent of Stores as from March 10.

Mr. T. C. Parker, Deputy Controller of Railway Accounts, has been granted 10 months' leave as from November 21 last.

Mr. P. D. Pande, has been appointed to officiate as Deputy Controller of Railway Accounts from the same date.

We regret to record the death on May 8, at the age of 62, of Mr. Stanley Brotherhood, M.I.Mech.E., head of the Peterborough engineering firm of Peter Brotherhood Limited.

The Rt.-Hon. Viscount Davidson, G.C.V.O., C.H., C.B., has been elected a Director of the Buenos Ayres Great Southern Railway Co. Ltd., and the Buenos Ayres Western Railway Limited, to fill the vacancies caused by the death of Lt.-Colonel Woodbine Parish.

Institution of Civil Engineers

At the annual general meeting of the institution on May 10, Mr. W. J. E. Binnie, M.A., was elected President for 1938-39 and will succeed Mr. S. B. Donkin on Tuesday, November 1, 1938. The Vice-Presidents elected were Sir Clement Hindley, Mr. M. F.-G. Wilson, Sir Leopold Savile, and Professor C. E. Inglis.

We regret to record the death at Cannes on April 16, at the age of 77, of Mr. John Hale-White, who retired in 1925 from the general managership of the Chilian Transandine Railway, which he had held for 12 years. During this period Mr. Hale-White carried through the merging under one management of the Chilean and Argentine sections of the trans-Andine route. He was also a metallurgical expert, and in the early part of his career had been in Spain as a railway and mining engineer. Mr. Hale-White was a son of the late Mr. William Hale-White, who earned distinction as a writer under the name of "Mark Rutherford."

We regret to learn that Mr. T. G. Creighton, formerly Officiating Deputy Chief Controller (Mechanical) Indian Railway Board, and now Works Manager (Carriage), Moghalpura, North Western Railway, met with an accident in India in February last and sustained

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a fractured spine. He is at present in London on medical leave and under treatment at the Hammersmith Hospital, Du Cane Road, W.

We regret to record the death on May 12, at the age of 65, of Sir Albert Ashley Biggs, Acting Agent of the Madras & Southern Mahratta Railway from 1925 to 1927, and Agent, 1927-28. He went to India in 1897 as Assistant Engineer, M. & S.M.R., becoming Deputy Chief Engineer in 1915, and Chief Engineer soon afterwards. On more than one occasion during this period he acted as Agent of the company. He received his knighthood on retirement in 1928. In 1927-28 Sir Ashley Biggs was President of the Indian Railway Conference Association. His talents as an engineer caused him to be lent to the Madras Government as Executive Engineer for construction of the Madras Famine Feeder Lines in 1902; and in 1909 the Portuguese Government in India requisitioned his services for extensions of the West of India Portuguese Railway to Mormuago.

The board of directors of Beyer, Peacock & Co. Ltd. announces that Mr. H. Wilmot (General Manager) has joined the board and has been appointed Managing Director. A local board has also been formed with the following first directors: Mr. H. Wilmot (Chairman); Mr. S. Jackson, M.I.Mech.E., M.I.Loco.E.; Mr. W. Cyril Williams, A. M. Inst. C. E., M.I.Mech.E., M.I.Loco.E.; and Mr. A. Bambrough.

Mr. M. A. Bulkley, Chief Conveyancing Assistant to the Solicitor, Great Western Railway, is retiring at the end of this month.

Lord Horne, Chairman of the Great Western Railway, was elected President of the G.W.R. Staff Association at the annual conference of the association on May 16.

We regret to record the death on May 14 at the age of 79 of Mr. W. H. Fox, who from 1910 to 1922 was Stores Superintendent of the former London Brighton & South Coast Railway.

Past and Present Crewe Pupils and Premiums Annual Dinner

Unique among gatherings in the engineering world is the dinner of the Past and Present Crewe Pupils and Premiums, itself an almost unbroken annual event now for close on fifty years. This gathering, with the traditions of so famous and old-established a railway works behind it, is necessarily widely representative of the highest officers as well as the rank and file of the railway engineering profession, and numbers also among its members and guests distinguished personalities from other fields of railway, state, and commercial enterprise. With these ingredients there is, nevertheless, an atmosphere of congenial good fellowship, which, combined with the light mood of the speeches, does so much to ensure the success of the evening. Such was again the atmosphere of the 48th dinner, held on May 13, at the Trocadero Restaurant, London, under the chairmanship of Mr. John Shearman, Road Motor Engineer, L.M.S.R. Among those present were:—

Messrs. R. D. Ball, F. E. Bagnall, J. Bardsley, Capt. H. P. M. Beames, Messrs. G. S. Bellamy, F. S. Bennett, D. Binyon, V. R. Bowen-Cooke, A. Campling, K. Cantlie, A. C. Carr, C. P. Chin, Lt.-Colonel E. V. Collier, Mr. Reginald Corrie, Colonel F. R. Collins, Messrs. G. Cozens, Robert Creak, Maj. R. D. K. Curling, Colonel J. E. V. Denning, Messrs. R. F. Eardley, Reginald Earle, J. P. Edwards, J. B. Elliott, F. E. Fairburn, E. G. D. Fawcett, Lt.-Colonel C. J. Fitzpatrick, Lt.-Colonel C. J. Francis, Messrs. A. S. Gillett, F. C. Goddard, Sir Nigel Gresley, Sir Martin Hall, Mr. W. Handy, Maj. H. A. Harrison, Mr. H. Hattersley, Colonel C. F. Hitchins, Mr. H. Holcroft, Maj. D. Howard, Messrs. H. G. Ivatt, R. Janson, Colonel B. C. L. Jervis.

Messrs. Lionel Kitson, C. S. Lake, Prof. F. C. Lea, Messrs. W. B. Leach, F. A. Lemon, G. A. Lemon, R. C. S. Low, Thomas Lunt, B. C. McPherson, R. E. L. Maunsell, W. E. K. Mayne, Charles Mayo, J. Metcalfe, J. L. Moore, D. Morgan, H. Neal, Austin O'Connor, Jnr., T. A. O'Neill, D. W. Ostle, L. Parrish, W. G. Phelps, W. B. Pickering, Capt. Frank Playford, Messrs. E. Plowell, F. A. Pope, T. N. Price, D. G. Ritson, F. B. Roberts, Capt. E. A. Robinson, Messrs. Leslie W. R. Robinson, John Shearman.

Messrs. W. A. Shelton, W. A. Stanier, L. W. Swainson, Maj. H. L. A. Swann, Lt.-Colonel G. S. Szlumper, Lt.-Colonel R. Tandy, Messrs. J. K. Taylor, G. Glynn Terrell, Reginal Terrell, J. Thom, Nigel Thornton, Eyre A. N. Turbett, J. A. Turner, D. C. Urie, J. W. Vaughan, Sir Herbert Walker, Mr. W. L. Watson, Maj. C. Williams, Messrs. H. R. Williams, T. Lovatt Williams, John Wilyman, R. S. Wood, G. Wooliscroft, W. E. Yates.

Mr. John Shearman followed the loyal toast with that of "The Guests" in a characteristically humorous speech. Lt.-Colonel G. S. Szlumper, General Manager, Southern Railway, replied in similar vein. Mr. C. E. Fairburn, Deputy Chief Mechanical Engineer and Electrical Engineer, L.M.S.R., proposing the toast of "Past and Present Crewe Pupils and Premiums," maintained the tempo of the previous speeches with excursions also into the realms of poetry. Mr. L. W. Swainson responded in like manner on behalf of "Past Crewe Men," making clever word play with locomotive technicalities, and Mr. James A. Turner ably responded on behalf of "Present Crewe Men." Major R. D. K. Curling proposed the toast of "The Chairman," to which Mr. Shearman suitably replied, with an appreciative reference to the work of organising the dinner so ably carried out by the Hon. Secretary, Capt. Reginald Terrell. Capt. Terrell, in his reply, stressed their indebtedness to the members of the dinner committee for the success of this enjoyable gathering.

British Acetylene Association Luncheon

The 37th annual luncheon of the British Acetylene Association was held at the May Fair Hotel on May 5, with Mr. R. S. Parnwell, the new President, in the chair.

Mr. C. S. Milne proposed the toast of "The Guests," with which he coupled the names of the Earl of Dudley, President of the Iron and Steel Institute, and Mr. Christopher J. Galpin, Director of Overseas Civil Aviation. He was pleased to welcome the representatives of various other welding processes, which, besides acetylene welding, were showing signs of equal progress; he also referred eulogistically to the pioneers of the carbide industry, many of whom he was glad to see in their midst.

The Earl of Dudley, in his reply, said he represented one of the welding industry's best customers—the steel makers. Although both acetylene and electric welding had an assured future here, Great Britain had not yet progressed like the U.S.A. in such developments as spot-welding and seam-welding of aluminium and nickel, but he relied upon the Institute of Welding to rectify this. He was glad that carbide was to be manufactured in Great Britain, and particularly glad, by virtue of his directorship on the G.W.R. that South Wales had been chosen as the venue.

Mr. Christopher J. Galpin remarked on the value of acetylene welding in the big national re-armament effort that was being made. He said that an association such as theirs, which controlled a vital product, through being able to get together the resources of the country and apply them at short notice rendered invaluable assistance to the Government in an emergency.

Sir William Letts, Director of Crossley Motors and Carbic Limited, proposed the toast of "The Acetylene Association," and stressed the importance of publicity and propaganda.

Mr. R. S. Parnwell, replying, said that their objectives were to foster development of the acetylene industry and co-ordinate it; to improve its efficiency and the general standard of safeguards, and, by means of propaganda, to establish and extend progress on a sound basis. Mr. Parnwell ended by proposing the toast of the retiring President, Mr. L. J. Tibbenham, who replied to the toast in a brief speech.

Ancillary Businesses of the British Railways in 1937

V—Canals

The 992 miles of canals owned and leased by the British railways resulted in a further substantial loss last year. Gross receipts declined by £2,025 but expenditure rose by £13,909, with the result that the loss of £64,666 was £15,934 greater than in 1936. Details of the results secured by the individual companies are shown in the above table.

CANALS

Company	Gross Receipts		Expenditure		Loss	
	1937	1936	1937	1936	1937	1936
	£	£	£	£	£	£
G.W.R. ...	13,688	14,256	33,032	31,346	19,344	17,090
L.N.E.R. ...	36,626	36,203	49,148	49,456	12,522	13,253
L.M.S.R. ...	115,992	118,449	149,763	137,753	33,771	19,304
					Profit	
S.R. ...	2,376	1,799	1,405	834	971	915

It will be seen that G.W.R. receipts fell by £568, and as working expenses increased by £1,686, chiefly in respect of maintenance, the net loss of £19,344 was £2,254 in excess of the previous year. The L.N.E.R. achieved a slightly better result than in 1936, receipts increasing by £423 and expenditure falling by £308, with the result that the net loss decreased by £731. The L.M.S.R., which owns 536 miles of waterway, sustained a loss of £33,771, an increase of £14,467 compared with 1936. This increased loss, which would have been still greater had it not been for a transfer of £4,372 from Renewal Account, was mainly due to a fall of £2,457 in receipts and an increase of over £17,000 in the cost of maintenance. In addition to the inevitable annual loss on actual canal working, the L.M.S.R. is bound under an old agreement with the Birmingham Canal, to guarantee a minimum dividend of 4 per cent. on the canal shares, an arrangement which cost the company £63,851 last year compared with £57,764 in 1936. The Southern Railway has a very small interest in canals, and is in the fortunate position of being able to show a profit on the business. Receipts last year were £577 in excess of the 1936 figure, expenditure rose by £521, chiefly under the head of maintenance, and the net profit of £971 was consequently £56 greater than in the previous year.

The capital expenditure on railway-owned canals up to the end of last year was £8,080,614, made up as follows:—

	£
G.W.R.	738,263
L.N.E.R.	1,302,761
L.M.S.R.	5,999,590
S.R.	40,000
Total	£8,080,614

It is unfortunate that the railways should have been literally compelled to incur this vast expenditure on canals, the majority of which are unremunerative. Admittedly many of them were once profitable concerns and made a valuable contribution to the nation's transport system, but they are unsuited to the requirements of modern business, and although a fair amount of traffic is still conveyed over a few of them, there are others which have outlived their usefulness and might well be abandoned.

Traffic Statistics

Details of the tonnage of goods and minerals conveyed over a number of canals and waterways during the last three years were recently published by the Ministry of Transport and reproduced in THE RAILWAY GAZETTE of April 29. Reference to these statistics shows that the highest tonnage conveyed over a railway-owned canal last year was 310,153, dealt with on the Trent & Mersey Canal of the L.M.S.R., the total length of which is 116 miles. The same company's Shropshire Union Canal, 194 miles in length, dealt with 243,527 tons, while the little Kensington Canal, which has a total length of only 33 chains and is jointly owned by the G.W.R., L.M.S.R., and Southern Railway, was responsible for 203,480 tons. The only other railway-owned canals upon which the traffic exceeded 100,000 tons were the Lydney Harbour & Canal (184,604), the Forth & Clyde (129,181), and the St. Helens (100,628). On the other hand, only 13,863 tons were conveyed over the Kennet & Avon Canal of the G.W.R. Yet this canal, which was constructed in 1794 at a cost of £1,000,000, at one time paid 5 per cent. The circumstances responsible for the acquisition of this canal by the G.W.R. afford a typical example of the manner in which numerous other canals were foisted upon the railways. With the coming of the railways, there was a natural diversion of traffic to the quicker and cheaper form of transport, and in 1846 the canal company, in desperation, sought Parliamentary powers to construct a railway parallel with the canal. Sanction was refused, but in 1851 the canal owners advised the G.W.R. of their intention to make a further effort to secure powers to construct an opposition railway, with the result that the railway company agreed to take over the canal. Over thirty years ago it was stated that this canal cost the G.W.R. £1 for each 10s. of receipts, and the position must now be very much worse. Other railway-owned canals on which the traffic has fallen to negligible levels are the Monmouth, Brecon, & Abergavenny and Stratford-on-Avon, both owned by the G.W.R.; the Ashby, Cromford, Huddersfield, and Lancaster (North End) canals of the L.M.S.R.; and the Chesterfield, Union, and Witham Canals of the L.N.E.R.

Difficulty of Disposal

Unfortunately it is not an easy matter to dispose of these burdensome legacies from the past. Parliamentary sanction has to be obtained for any proposed abandonments, and there is always the possibility of objections by local authorities, county councils, and other interests. The difficulty of disposal is well evidenced by the recent experience of the L.N.E.R. which found itself unable to give away the Pocklington Canal, a small waterway 9½ miles in length, connecting Pocklington with the River Derwent. The L.N.E.R. offered this canal to the Wilberfoss & Thornton Level Drainage Board as a drainage channel, complete with freehold, but the board, while of opinion that the canal would be a benefit in flood times, was not prepared to consider the offer until the canal had been put into a thorough state of repair, despite the fact that a contribution of 33⅓ per cent. of the net cost would have been available under a Government grant for drainage purposes!

An interesting development last year was the confirmation by Parliament of the lease to the Trent Navigation Company of a portion of the Nottingham Canal of the L.N.E.R. This canal, which is nearly 15 miles in length, connects the River Trent, near Nottingham, with the Cromford Canal, near Langley Mill. The L.N.E.R. Act, 1937, confirms an Agreement under which the eastern portion of the canal, with the Poplar Arm and Brewery Cut, is leased to the Trent Navigation Company for 99 years at an annual rent of £300, with an option to purchase outright for £5,000. For many years the traffic on the western portion of the canal has been negligible, and the same Act releases the company from the obligation to maintain this portion in a navigable condition, although it is still required to maintain the canal as an efficient part of the land drainage system of the River Trent catchment area.

As reported in THE RAILWAY GAZETTE of April 22 last, the Southern Railway is engaged in filling up the greater part of the Gravesend & Higham Canal, which it obtained power to close, except for the Gravesend Canal Basin, under its Act of 1934. The L.M.S.R. Bill which is being promoted in the present session of Parliament includes provisions to enable the company to discontinue a small portion of its Newcastle-under-Lyme Canal which is unnecessary for navigation, and the site of which can be sold.

Institute of Transport Congress at Edinburgh

Opening session and discussion of papers by Mr. A. Henderson and Mr. George Mills

A large gathering of members, many accompanied by their ladies, assembled for the opening session of the Institute of Transport Congress in Edinburgh on Wednesday. Among those attending are:—

Sir Alexander Gibb, Messrs. Sidney E. Garcke (Chairman, Tilling & British Automobile Traction Limited), William Whitelaw (Chairman, L.N.E.R.), D. Ross-Johnson, A. Henderson (Chairman of Traffic Commissioners, Southern Scottish Area), G. Mills (General Manager, Scottish Area, L.N.E.R.), J. Pike, M. D. Robinson (District Locomotive Running Superintendent, Scottish Area, L.N.E.R.)—the foregoing are Members of Council.

Messrs. J. Amos (Traffic Manager, Scottish Motor Traction Co. Ltd.), A. W. Arthurton, J. Ballantyne (Chief Officer for Scotland, L.M.S.R.), R. Beveridge (Commercial Manager, S.M.T.), P. R. Blake, C. Carslake (Signal and Telegraph Engineer, N.E. Area, L.N.E.R.), F. L. Castle (General Manager, Siemens & General Electric Railway Signal Co. Ltd.), H. H. Crow, C. S. Dunbar, K. G. Fenelon, W. H. Gaunt (Distribution Manager, J. Lyons & Co. Ltd.), L. W. Gupwell, W. Hickman (General Manager, Rolling Stock Department, Brush Electrical Engineering Co. Ltd.), T. Graham Homer (General Manager, Thames Valley Traction Co. Ltd.), E. B. Hutchinson, G. B. Lissenden (Traffic Controller, Lever Bros. Ltd.), R. McLeod (General Manager, Edinburgh Corporation Transport Department), T. B. Maitland (Solicitor for Scotland, L.N.E.R.), L. Meara (Cartage Manager, S. Scottish Area, L.N.E.R.), J. Ness, J. Paterson (Managing Director, Carter Paterson & Co. Ltd.), E. L. Phipson (South African Railways and Harbours), H. Riches (Chairman, Traffic Commissioners, N. Scottish Area), A. T. V. Robinson (Deputy Secretary, Ministry of Transport), C. E. R. Sherrington (Secretary, Railway Research Service), A. Witcomb Smith, Frederick Smith (Head of Transport Executive, Unilever Limited), Sir William Thomson (Chairman and Managing Director, Scottish Motor Traction Co. Ltd.), G. S. Vickary, J. Wilson (Solicitor for Scotland, L.M.S.R.), E. A. Woodhouse.

Sir Alexander Gibb, the President, opened the proceedings in the Banqueting Hall of the North British Station Hotel by welcoming the members, and expressing appreciation of the Local Committee's work in preparing the attractive programme before them.

The first paper submitted for discussion was one by Mr. Archibald Henderson on "The Regulation and Control of Transport in Europe."

The Regulation and Control of Transport in Europe

In the present period of transition, said Mr. Henderson, it was not possible to do more than offer an introduction to such a wide subject as the regulation and control of transport. A full examination carried out at some future, and it was to be hoped, calmer time, would reveal a most unusual state of coincident and parallel activity in practically all countries. For the present the accumulation of material made it necessary to limit the inquiry to the European countries. Even so, some important phases of the subject—such, for example, as taxation—could not be treated adequately in the time available. With the birth and growth of modern road transport in recent times, every country had been forced to secure some measure of statutory control over its transport services, and the process had been accentuated by the world-wide economic crisis. State regulation and control varied widely, and the precise methods and procedure established by different countries varied according to their circumstances. No two States had adopted the same form or manner of control because no two States had the same situation to meet, although they all had the same major problem to solve. It depended on the degree of State ownership already existing, or upon the relative extent of railway facilities, or density of population; as also on their industrialisation or agricultural development. The incidence of taxation also followed widely divergent lines, and the system of licensing, while based on similar general principles, also varied widely.

In a brief account of the position in each of the 21 European countries referred to in the paper, Mr. Henderson pointed out the principal features of regulation and control in each, summarised also in two appendices. Of the 21 countries described (these included Austria and Spain), 19 had State-owned railways. As regards the regulations governing the transport of passengers by road, in 13 countries the object was "to prevent wasteful competition," namely, Austria, Belgium, Bulgaria, Cechoslovakia, Denmark, Eire, France, Germany, Hungary, Italy, Norway, Portugal, and Spain. Fares were controlled also in 13 (but not all the same) countries, and timetables in 11. Summarising similarly the regulations governing the transport of goods by road, Mr. Henderson said that in 12 countries they were aimed at "preventing wasteful competition"; in 8 the object was to secure "an apportionment of the traffic between rail and road"; and in 10 countries the regulations included control of rates. Many States had laid down rules for safety, inspection, and guaranteed conditions of hours and pay for workers.

The primary end of all this legislation was a readjustment of the use being made of the means of transport available. In most countries the railways were protected and in some the canals also; the freedom of road users was accordingly restricted, or additional taxation was imposed on road operators. Although the legislation was stated to have been intended to secure not only control but co-ordination, it could not be said to have achieved the latter purpose to any measurable degree. On the other hand, whilst co-ordination might not be an immediate result, Mr. Henderson said it did appear that the eventual end of the regulation and control would be to secure a gradual adjustment of the traffic of every country.

Reception by Lord Provost

The Rt. Hon. Sir Louis S. Gumley, Lord Provost, and the Magistrates and Council of the City of Edinburgh held a reception at the Assembly Rooms on Wednesday evening, and on Thursday morning the paper entitled "The Price of Transport" by Mr. George Mills, Divisional General Manager, Scottish Area, L.N.E.R., was discussed.

The Price of Transport

The intrusion of governments into the realm in which supply and demand once reigned supreme, said Mr. Mills, had reduced the erstwhile science of economics to something perilously approaching the empirical. What had emerged in the transport world was the problem created by the internal combustion engine, a mobile small unit in an industry formerly dominated by large units moving on fixed rails. The scope of the paper was limited to the transport of commodities, as passenger traffic could be said to have reached an equilibrium in which the interest of the travelling public was preserved by competition and control, while the financial return to the railways on their investment in omnibus concerns compensated them for lost traffic.

The crucial transport problem was the price to be charged for moving commodities. The system of railway rates was based on two main principles, (*a*) charging what the traffic will bear, and (*b*) that known as "taper," varying with distance. The railway industry differed from other forms of transport mainly in the large proportion of its capital expended on land and permanent way. Approximately 60 per cent. of the total railway working expenditure was of the nature of fixed or non-variable costs whereas the corresponding figure for road haulage was probably not more than 20 per cent. It followed therefore that road transport rates were capable of being more nearly related to direct or variable cost than railway rates. The classification was used in some transport agencies, although in a much less elaborate form than on the railways. The principle of "taper" was also to be found in road transport rates but there was no attempt to apply it scientifically. In some cases rates fixed by road hauliers were based on the corresponding rail rates, with a fixed percentage cut, in which case the elements of classification and taper were automatically reflected. Canal charges were divided between the toll charge of the canal owner and the carriage charge made by the carrier. In both cases classification and taper were to be observed, as they were also in sea freights, in which there was no statutory control.

The application of the railway classification did not find favour with road hauliers, as the rates on the more valu-

able classes would become so high that traders would find it more economical to operate their own vehicles. Road transport was, after all, a selective service. There was no "obligation to carry," and it was not unnatural that hauliers should concentrate on the higher rated traffics, although it was only these that enabled railways to make lower charges per ton mile for raw materials. On the whole, so far as could be ascertained, the majority of the trading interests did not desire any fundamental alteration in the rates structure. On the other hand, cheap railway rates for raw materials, with the diversion to the road of finished products which can bear a heavier charge, might be good business for the trader, but it was disastrous for the railway revenue.

Mr. Mills likened the railway rates structure to a spider's web. It had become so well balanced and interwoven in course of time that the dislocation of one thread had an effect in many unexpected places. He hardly liked to think how many threads still supported it but the time was fast approaching when no self-respecting spider could survey it with pride! The classification system could best operate under a monopolistic condition, and would not exist side by side indefinitely with a method of charging based on cost of service. There were adequate facilities now and the real question was whether one form of transport was to expand to the detriment of its competitors. To operate efficiently any undertaking must be profitable enough to be able to put aside money for development, as well as attract fresh capital. British railway capital had never been remunerated at a high level. In 1913 the return was only 4·38 per cent., and for 1937 it was at 3·47 per cent. Yet the Railways Act of 1921 entitled the railways to a return of about 4·7 per cent. If in future the maximum above which neither road or rail charges could go was to be governed by the cost at which the unrestricted C licence holder could carry goods it seemed that the railway rates structure in its present form was in jeopardy.

Alternatives to the present system of railway charges were well worth reviewing, and Mr. Mills referred at some length to the far reaching scheme of freight rate simplification put into force on the railways in Uruguay, where a classification principle had been substituted by a sliding scale varying according to the weight of the consignment, together with a novel zone system, in which the distance from the capital was taken into account.

Returning to his main theme, Mr. Mills referred again to the standard revenue to which the railway companies are entitled. Could they earn their standard revenue, he asked, by a complete reversal of their charging system? Should road adopt, or rail jettison, what was known as classification? Notwithstanding the suggestion of the Transport Advisory Council, and the Memorandum of the British Road Federation, no clear course appeared open. But any step that was to be taken should be taken now, when the trade barometer is at "fair," as another period of depression might bring matters to a head unpleasantly. The railways were being undercut by a competing means of transport with national aims but as yet without national responsibility. If the railways desired a fair share of the conveyance of high grade commodities the price might require to be determined not by a statutory classification and scale of rates, but by the prices charged by their competitors, even though this prejudiced the easy conveyance of raw materials. A complete readjustment of railway rates was at least a theoretical possibility which the force of circumstances might bring into the realm of practical politics.

Programme of Visits

On Thursday afternoon visits were paid by members and their friends to the control room and power signalling at Waverley station, L.N.E.R.; the central bus garage and Shrubhill tramway works of the Edinburgh Transport Department; the New Street garage and works of the Scottish Motor Traction Co. Ltd.; and Granton Harbour and Leith Docks. The dinner of the Scottish Section of the Institute of Transport took place at the North British Station Hotel in the evening.

INTER-RAILWAY AMBULANCE COMPETITION.—The inter-railway ambulance competition will be held at the Wharncliffe Rooms, Marylebone, on Thursday, May 26, when nine teams will participate. Two teams from each of the grouped railways have been selected by a series of competitions organised by the respective companies; and one, from the ungrouped railways, is selected by a preliminary competition arranged by the St. John Ambulance Association. This preliminary contest was held at St. John's Gate, Clerkenwell, on March 25, when the adjudicator was Dr. R. B. Duncan, of London, and the Metropolitan team, L.P.T.B., qualified for the final. The teams representing the several companies in the Inter-Railway competition will be as under :—

G.W.R.	...	Pilning and Westbury.
L.M.S.R.	...	Wolverton and Crewe Machine Shop.
L.N.E.R.	...	King's Cross Loco. and Bishopsgate B.
S.R. ...	...	Horsham and Exmouth Junction.
Ungrouped	...	Metropolitan, L.P.T.B.

The adjudicators will be Captain A. C. White Knox, M.C., M.B., of London, for the team test, and Dr. M. M. Scott, M.R.C.S., of London, for the individual tests. The challenge shield of the St. John Ambulance Association and prizes will be presented by Sir Josiah Stamp, G.C.B., G.B.E., President of the L.M.S.R., at the conclusion of the competition.

Staff and Labour Matters

Railway Wages

The executive committees of the National Union of Railwaymen, the Associated Society of Locomotive Engineers & Firemen, and the Railway Clerks' Association met in London on Monday last, May 16, to consider a common programme of claims to be presented to the railway companies. After the meeting Mr. John Marchbank, Secretary of the National Union of Railwaymen, stated that each union would table separate claims and the nature of the claims would not be revealed before they had been received by the companies. It is understood the claims will include improved wages and working conditions and will be submitted to the railway companies at an early date.

Railway Shopmen—Industrial Court Decision

The Industrial Court sat on May 16 to determine the claims of W. Hardern and J. W. Whitney, employed by the L.M.S.R. as pulverising plant attendants at the Crewe steel foundry, for an increase in their rates of pay. The plant operated by the men concerned was installed in the Crewe locomotive works in 1935 and an agreed statement by the parties as to the nature of the plant and of the duties of the two men covered by the present reference was submitted to the Court. In support of the claim, the National Union of Railwaymen contended that the rates of both Hardern and Whitney are too low and that having regard to the responsibilities attaching to their positions and the conditions under which other men are employed in the works, *viz.*, on a system of payment by results, Hardern should be paid at the rate of 45s. a week and Whitney at the rate of 40s. a week whilst acting as assistant and at the rate of 45s. whilst in charge of the plant.

On behalf of the railway company evidence was submitted as to the rates paid on a similar plant at Derby and to the rates paid to oil gas makers in accordance with the provisions of Industrial Court Award No. 728, the nature of the duties of such men being, it was suggested, similar in character to those of the men concerned in the present application. As regards J. W. Whitney, he is, when in charge of the plant in the absence of W. Hardern, paid at the rate of 40s. a week, and it was contended that having regard to these considerations no alteration in the existing rates of the two men concerned should be made. The Court, by Award No. 1,702 dated May 16, 1938, decided that in the case of W. Hardern no change in his present rate shall be made and that in the case of J. W. Whitney his present rate of 35s. a week shall be increased to 37s. a week, with effect as from the beginning of the first pay week following May 16.

QUESTIONS IN PARLIAMENT

Shanghai-Nanking Railway

Mr. A. C. Moreing (Preston—C.) on May 9 asked the Prime Minister whether he was aware that the Japanese authorities had refused to allow British railway officials to inspect the line of the Shanghai—Nanking railway on behalf of British mortgagees of the railway revenues and were themselves selling passenger tickets on the line; and what steps he was taking to stop this serious breach of the loan agreement.

Mr. R. A. Butler (Under Secretary of State for Foreign Affairs): I am aware that permission has been refused for the inspection of this line by representatives of the mortgagees. As regards the sale of passenger tickets, I understand that permits to travel on it are issued by the Japanese military authorities and that those receiving such permits do in fact pay for their fares. His Majesty's Ambassador at Shanghai has urged the Japanese authorities there to ensure that British interests in this line are safeguarded. His Majesty's Ambassador at Tokyo has also taken the matter up with the Japanese Government and has asked that an early opportunity should be afforded for the inspection and survey of the line, and that the necessary measures should be taken to safeguard the interests of the British bondholders.

Defence of Railway Bridges against Air Attack

Major-General Sir Alfred Knox (Wycombe—C.) on May 11 asked the Minister for the Co-ordination of Defence whether any arrangements were being made for the defence of railway bridges against attack from the air.

Sir T. Inskip (Minister for the Co-ordination of Defence): Arrangements for the defence of vulnerable points including railway bridges are included in the plans for air defence.

Sir Alfred Knox asked which Department was entrusted with the plans—War Office, Home Office or Stationmasters at the stations.

Sir Thomas Inskip replied that the War Office and Air Ministry co-operated on the matter.

Transport of Air Ministry Goods

Mr. H. Holdsworth (Bradford South—Lib.) on May 11 asked the Chancellor of the Duchy of Lancaster whether instructions had been issued by the Air Ministry requiring manufacturers to deliver goods by railway instead of following the normal practice of inviting tenders for the transport of goods.

Lieut.-Colonel A. J. Muirhead (Under Secretary of State for War): No, Sir; where the contract price of an article includes delivery costs the contractor is free to make his own transport arrangements. Where the price does not include delivery costs the method of transport is decided by economic advantage and no special preference is given by the Air Ministry to any form of transport.

Charing Cross Collision, District Line

Mr. C. R. Attlee (Leader of the Opposition) on May 17 asked the Minister of Transport whether he could make any statement on the accident which occurred on the underground railway at Charing Cross that morning.

Dr. Leslie Burgin (Minister of Transport): Yes, Sir. I regret to inform the House that shortly before 10 a.m. this morning an Inner Circle train on the District Line ran into the rear of a stationary Barking train on the east bound road between Charing Cross and Temple stations, at a point slightly nearer the latter, with the result that the last coach but one of the Barking train was seriously damaged. The cause of the collision is not yet known and is now under investigation. It is with the deepest regret that I have to state that, so far as is at present known, 5 passengers were killed or have since died, and 29 passengers are detained in hospital injured, some of them seriously. Accompanied by the Parliamentary Secretary and my officials I have visited the scene of the accident and I have appointed one of my Inspecting Officers of Railways to hold an Inquiry. The House will join with me in expressing the deep sympathy we must all feel with those affected by the accident.

[Since this reply was given in Parliament there has been another death, bringing the total fatalities up to six. The Ministry of Transport inquiry into the accident will be opened today (Friday) by Colonel E. Woodhouse. We refer to this subject in an editorial article on page 972.—ED., *R.G.*]

PARLIAMENTARY NOTES

L.P.T.B. Bill

The London Passenger Transport Board Bill was read the third time and passed by the House of Commons on Friday, May 13.

Blackpool Improvement Bill

This Bill was read the third time, with the amendments, and passed in the House of Lords, and returned to the House of Commons on May 17.

Southern Railway Bill

This Bill was on May 12 reported, with amendments, by the House of Commons Committee on Unopposed Bills. It empowers the company to acquire additional lands for station and other improvements, to stop up certain level crossings, and to increase the rates and charges at Southampton Docks.

Brighton Corporation (Transport) Bill

The Bill promoted by the Brighton Corporation, which proposes to sanction an arrangement for the pooling of passenger transport between the Brighton Corporation Tramways and the Brighton, Hove & District Omnibus Co. Ltd. (a subsidiary of Thomas Tilling Limited) and to authorise the substitution of trolleybuses for tramcars, was before a Select Committee of the House of Commons on May 3, May 4, and May 5. It was opposed by Southdown Motor Services Limited which has a territorial agreement of many years' standing with the corporation and the Brighton, Hove & District Company for the partition of traffic. The suggestion that the corporation should be allowed to run either trolleybuses or buses limited to the present tram route was not accepted by the Southdown Company, and the committee on May 5 adjourned until Wednesday, May 11, to allow time for further negotiation. On May 12 agreement was reached on a clause which, in the main, preserved the existing position as between the corporation and the Southdown Company. The committee found the preamble of the Bill proved.

L.N.E.R. Bill

The House of Commons Committee on Unopposed Bills reported this Bill, with amendments, on May 12. The Bill gives the company power to close the public road level crossings on the Loughton, Epping & Ongar branch, electric traction on which cannot be operated until the level crossings have been eliminated. Powers are also taken for the making of running loops on the Great Central Section between Woodford and Hinton and Nottingham, for the acquisition of lands, and for the construction of a short railway making a direct connection between the Rising Sun Colliery at Wallsend and the company's Northumberland Dock branch.

L.M.S.R. Bill

This Bill, which has already been through the House of Commons, was read a second time in the House of Lords and committed, on May 17. It authorises the company to carry out alterations of public road bridges near Blackpool (Central) station, and to acquire lands in various parts of the system which are required for the improvement of the undertaking. The company is also asking for powers to discontinue a small portion of the Newcastle-under-Lyme Canal, which is unnecessary for navigation. Provisions are also included to enable any member of the Superannuation Fund to secure an annuity for his widow or dependents in lieu of part of the benefits which would otherwise be payable in his lifetime. There are no petitions against the Bill.

NOTES AND NEWS

Fire at English Electric Rugby Works.—On May 11 a fire broke out in a fuel tank on the oil engine test bed at the Rugby works of the English Electric Co. Ltd. The roof of part of the erecting shop and despatching bay was damaged, but the company informs us that this will not interfere in any way with the manufacturing programme, nor has it affected the employment of workpeople except those on the night-shift on the evening of the fire.

International Container Week.—The third International Container Week, organised by the International Container Bureau, will be held in Brussels from June 13 to 17. In connection with the meetings of the Technical and Commercial Commissions of the bureau to be held between these dates, an exhibition of containers will be held concurrently at Brussels (Petite-Ile) station, and on the final day methods of handling containers adopted by various railway administrations will be demonstrated.

Locomotive Engineers' Summer Meeting.—The summer meeting of the Institution of Locomotive Engineers is to be held in Scotland from June 8 to 12. The party will travel to Glasgow by the Coronation Scot at 1.30 from Euston on Wednesday, June 8, and next day will be the guests of the L.M.S.R. on a steamer trip. The institution dinner will be held in the evening at 8 p.m. at the Grosvenor Restaurant. Friday is to be devoted to visits to Colville's steel works and the St. Rollox works of the L.M.S.R., and afterwards the Empire Exhibition. Members will be entertained to lunch at the Central Station hotel by Colvilles Limited. On Saturday the Empire Exhibition will again be visited, and on Sunday the members will be the guests of the L.N.E.R. for a visit to the Forth Bridge and to Edinburgh.

Northern Ireland Traffics.—Passengers carried on railways wholly in Northern Ireland (excluding season-ticket holders) in the first two months of 1938, numbered 514,287 compared with 456,151 in the first two months of 1937, and ordinary passenger receipts improved from £26,918 to £28,977. Merchandise and minerals conveyed in the first two months of 1938 amounted to 85,904 tons, a decrease of 4,400 tons in comparison with the first two months of 1937; the number of livestock fell from 33,700 to 31,445, and the total goods traffic receipts fell from £33,700 to £31,445. On railways partly in Northern Ireland, the ordinary passengers in the first two months of 1938 were 601,692, against 575,061 in the first two months of 1937, and they brought in receipts of £54,078 which were £4,624 higher. Merchandise and mineral tons dropped from 146,519 to 135,766, but the number of livestock rose from 93,541 to 101,647, and the total receipts from goods traffic were £91,296, against £94,019 for the first two months of 1937.

German Railroads U.S.A. Office.—Attractive new American headquarters of the German Railroads Information Office at 10 East 57th Street, New York, were officially opened on May 2. The German Railroads Information Office in the U.S.A. was opened in the spring of 1925. The new headquarters are in a two-storey building in renaissance style. Public offices are on the ground floor and the administration and private offices above.

Engineers' Guild.—A meeting at Caxton Hall, London, on May 16, announced in last week's issue, decided to form an Engineers' Guild, "to promote the social and economic welfare of the engineer, to stimulate public service in the profession, to encourage and develop the efficiency of the engineer, and to promote unity in the profession." The majority and the minority reports were the subject of a long discussion and the minority report was finally rejected by 73 votes to 72. The recommendation of the majority report was modified to confine membership of the Guild to the members of the Institutions of Civil, Mechanical, and Electrical Engineers, and the Institution of Naval Architects.

Railway Air Services Summer Schedules.—The full summer timetable of Railway Air Services Limited will be introduced on May 23, and includes various improvements additional to the direct London-Liverpool-Glasgow service already in operation (see our issue of May 6). The Liverpool-Shoreham route of last year will be extended to Manchester, where, from June 27, R.A.S. machines will use the new Ringway airport. A new service will be worked between Cardiff and Ryde (with connection for Shoreham) on Sundays only between June 26 and September 11. Accelerations of from five to ten minutes will be made in the point-to-point flying times on the Bristol-Cardiff-Exeter-Plymouth route.

Robins Bolitho Ambulance Competition.—The annual competition for the Robins Bolitho Challenge Shield, given by the late Mr. T. Robins Bolitho for teams from Great Western Railway stations in West Cornwall, was held at Penzance on April 27, when Dr. A. M. Blackwood of Camborne adjudicated. The test was very well carried out by all competitors, and at the conclusion of the contest the result was announced by Mr. J. H. Tippett, Divisional Ambulance Secretary, as follows:—

		Marks
1.	Penzance	77½
2.	St. Ives, Truro Loco } Tie	75
4.	Truro Traffic	67

Mr. J. F. Anstey, Assistant District Traffic Manager, presided over the subsequent presentation proceedings, and was supported by Mr. A. W. H. Christison, Divisional Locomotive Superintendent, the Mayor and Mayoress of Penzance (Mr. John Birch and Miss D. Harvey), and the trophy and prizes were presented by Mrs. E. H. W. Bolitho, wife of the Lord-Lieutenant of Cornwall, who expressed pleasure that the shield had come back to Penzance.

Franco-Polish Railways.—On February 22 the working of the Upper Silesia–Gdynia line, formerly worked by the Polish State Railways, was taken over by the Franco-Polish Railways Company. The formation of this company to complete and work the line was recorded in THE RAILWAY GAZETTE of April 24, 1931, and it was opened on March 1, 1933, but work is still in progress on various branches, as described in our issue of March 19 last year.

New Danish Bridge Opened.—On Sunday, May 15, the Oddesund bridge (described in THE RAILWAY GAZETTE of September 3, 1937, page 394) in western Jutland was opened by King Christian. About 300 guests travelled by special train from Aarhus to Oddesund, where the Minister of Transport, Mr. Fisker, opened the proceedings and the King, after making a short speech, pressed a button, causing the bascule span to be lowered and declared the bridge open. After this the royal train and a procession of about 45 motorcars crossed the bridge, thereby breaking a silk cord, and went on to Thisted. This bridge is said to be the first in the world with a bascule span having roller bearings; these are of the SKF pattern.

New Moscow Railway Bridges.—Designs have been prepared of four new bridges to be built on the outskirts of Moscow, in connection with the reconstruction of the Moscow railway junction. In place of the three-span bridge at Fili station (Western Railway), a steel arch bridge with a single span of 604 ft. will be constructed. Another big bridge will be erected at the Moskvorechye station on the reconstructed Okruzhnaya Railway; and at Tushino, on the Okruzhnaya Railway, a single-span steel arch bridge will be built across the Moscow river. Across the Yauza river on the Dzerzhinsky Railway a ferro-concrete bridge will be put up. All these bridges will carry multiple tracks, and all are to be begun this year.

Baldwins Limited.—Presiding at the recent annual general meeting of Baldwins Limited, Sir Charles Wright, Bt., said that the trading profit for the year 1937 was £808,547, an increase of 28 per cent. over 1936. This result included a dividend of 5 per cent. on the ordinary shares of Guest Keen Baldwins compared with 2½ per cent. in 1936. The dividend for the year on the ordinary stock of Baldwins Limited was 10 per cent., less tax. The company's steel works at Panteg, Gowerton and Landore again worked fully during

the year, and the sheet works in Monmouthshire and in the Midlands were fully occupied. The mechanised mills now working had given good results, and other mills were in course of mechanisation. The tinplate production in 1937 was 843,083 tons, an increase of 16·9 per cent. over 1936. Guest Keen Baldwins Iron & Steel Co. Ltd. showed an increase in trading profits. During 1938 a programme of extensions would be completed.

Road Accidents.—The Ministry of Transport returns for April of persons killed or injured in road accidents is as below. The figures in brackets are those for the corresponding period of last year :—

	Killed	Injured
England—		
Pedestrians ...	171 (181)	4,827 (5,060)
Others... ...	256 (211)	10,926 (9,918)
Wales—		
Pedestrians ...	4 (10)	228 (213)
Others... ...	18 (9)	492 (383)
Scotland—		
Pedestrians ...	23 (31)	665 (627)
Others... ...	36 (21)	981 (813)
	508 (463)	18,119 (17,014)

The total fatalities for the preceding month were 516, compared with 463 in the corresponding period of 1937.

Foreign Holdings in Baltimore & Ohio Railroad.—According to a report filed with the Securities and Exchange Commission by the Baltimore & Ohio Railroad Company, foreign investors in the securities of the company increased their holdings last year. The holdings of the Swiss Banking Corporation at the end of 1937 totalled 142,763 common shares, compared with 64,187 at the end of 1936. Maatschappij Tot Beheer of Amsterdam held 70,632 common and 24,441 preferred shares, compared with 43,022 and 13,981 respectively. The third largest holder is the Union Pacific Railroad Company with 35,941 common and 18,060 preferred shares—both unchanged compared with the previous year. The Kidder Peabody Company acquired 19,702 common shares in 1937.

G.W.R. Ambulance Presentation at Gloucester.—At a smoking concert held at the Spread Eagle Hotel, Gloucester, on April 9, members of the Gloucester G.W.R. Ambulance Corps assembled to receive examination awards, long service medals, and other trophies. Mr. H. Williams, Divisional Superintendent, who presided, was supported by Mr. H. Leslie Boyce, City Member, Mr. L. J. A. Callaway, District Goods Manager, and local officials of the company. Mr. Callaway presented the S. Morris Cup (given by the former Divisional Superintendent for the member of the corps which had performed the most useful ambulance work during the previous twelve months) to Mr. C. T. Drinkwater. He referred to the fact that Mr. Drinkwater's services to the movement dated from 1894. Mr. Boyce, before distributing class awards and gold efficiency medals, complimented the corps on its 50 years' existence, during which nearly 2,500 examination awards had been gained and 130 long service medals and bars, in addition to which several members had been honoured by admission to the Order of St. John as Officers and Serving Brothers.

Ransomes & Rapier Limited.—The value of orders booked during the year 1937 inclusive of the sluice gates and operating machines for the Mohammed Aly barrage, was over 40 per cent. in excess of 1936, and the balance of orders on hand at the end of 1937 was some 50 per cent. above the corresponding figure at the end of 1936. This was explained at the recent annual general meeting by Mr. R. R. Stokes, M.P. (Chairman and Managing Director) who added that the prospects for the current year were bright. A very satisfactory feature of the year's trading had been the steady increase in export business. With regard to work oversea, the Assiut contract had been satisfactorily completed. Work had started on the Mohammed Aly barrage and he had every reason to hope that the work at Kut would be completed next season.

Review of Railway Charges.—Sir William Wood, Vice-President, Finance and Service Departments, L.M.S.R., giving evidence on May 17 before the Railway Rates Tribunal on behalf of the four amalgamated railway companies at the annual review of standard and exceptional charges, explained that in the 13 weeks to January 2, the first quarter during which the 5 per cent. increase in charges had operated, total traffic subject to the increase had advanced by 1·15 per cent., whereas traffic which escaped had fallen by 0·91 per cent. There had been no important loss of traffic due to the 5 per cent. increase and the reduction of volume had been partly due to changes in trade conditions. Working expenses had been increased by £5,520,353 during 1937, and he estimated that they would be still further increased in 1938. The companies thought it would be an error to make an increase in charges at the moment. They had no experience yet of the effect of the 5 per cent. increase on the summer traffic. The tribunal adjourned to consider its judgment.

L.M.S.R. Ambulance Competition Finals.—The finals of the L.M.S.R. Railwaymen's Ambulance Competition (England and Wales) were held in the Wharncliffe Rooms, Hotel Great Central, on Friday, May 6. Nine teams competed, and each was judged on the combined results of three tests, namely, a team test, a test for diagnosing individual injuries, and a *viva voce* examination. The team test was effectively staged on a length of dummy track against a back-scene of a stationmaster's office and a signal box. Wolverton " A " team won the Challenge Shield for the year, with a total of 474½ marks, and second place was taken by Crewe (Machine Shop) with 467 marks. The other results in order of merit were : Saltley Traffic (464) ; Camden " A " (454) ; Newton Heath (452½) ; Bushbury (451¾) ; Edge Hill Goods (451½) ; Blythe Bridge (440½) ; and Bristol Loco (405 marks). Mr. G. L. Darbyshire (Chief Officer for Labour and Establishment) presided over a large attendance. The awards were presented by Lady Glyn, wife of Sir Ralph Glyn, a Director of the L.M.S.R.

New American Firm to Promote Lightweight Rolling Stock.—Mr. Frederick D. Foote, a well-known figure in the American rolling stock building industry, and Dr. Beram D. Saklatwalla, the expert metallurgist whose work upon chromium-copper steels led to the production of Cor-Ten steel, have become associated in the formation of the Alloys Development Corporation of New York. This undertaking aims at the development and production of cheap, lightweight, corrosion-resisting, high-tensile steels, mainly for railway rolling stock. It is estimated that the general use of such light-weight stock would save American railways $100,000,000 a year in working costs.

Design and Layout of Terminal Stations.—At a recent monthly meeting of the Railway Club, Mr. C. N. Anderson gave an address on the " Design and Layout of Terminal Stations." Mr. Anderson referred to the Ministry of Transport requirements and commented upon existing terminals which did not comply. The foremost problem of terminals was release of the engine, and Liverpool Street and Victoria illustrated different treatment of the problem, while the ideal was attained at Grand Central Terminal, New York. Dealing with approach difficulties, the lecturer described the trouble at Waterloo, which was solved by the Durnsford Road fly-over.

Hadfields Developments.—The considerable progress made by this company during the year 1937 in carrying out the programme of extensions and improvements was mentioned at the recent ordinary general meeting by Mr. P. B. Brown, Deputy Chairman, who presided in the absence of Sir Robert Hadfield through illness. The extension to the open hearth department enabled the company to amplify its steel output to the extent of 20 per cent. The electric furnace department worked to full capacity and the output was 50 per cent. greater than that of 1936. No less than 63 per cent. of the company's total output by all processes was alloy steel of many different types. Despite the increasing calls for ordnance work, the output by the company of steel for commercial purposes in 1937 was 22 per cent. over that of 1936.

Forthcoming Events

May 25 (*Wed.*).—Institution of Railway Signal Engineers, at Inst. of Electrical Engineers, Savoy Place, London, W.C.2, 6 p.m. " Gravitation Yards," by Mr. J. Kubale.

May 26 (*Thurs.*).—Railway Club, at Royal Scottish Corporation Hall, Fetter Lane, London, E.C.4, 7.30 p.m. " Great Eastern Section Suburban Services of the L.N.E.R.," by Mr. B. White.

May 30 (*Mon.*).—Indian State Railways, at East India United Service Club, 16, St. James's Square London, S.W.1, 7 for 7.30 p.m. Annual Dinner.

XUM

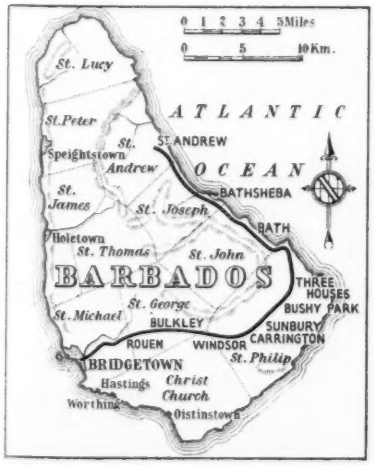
British and Irish Traffic Returns

GREAT BRITAIN	Totals for 19th Week			Totals to Date		
	1938	1937	Inc. or Dec.	1938	1937	Inc. or Dec.
	£	£	£	£	£	£
L.M.S.R. (6,852½ mls.)						
Passenger-train traffic...	433,000	656,000	– 223,000	8,124,000	8,216,000	– 92,000
Merchandise, &c. ...	473,000	415,000	+ 58,000	9,102,000	9,284,000	– 182,000
Coal and coke ...	243,000	226,000	+ 17,000	5,244,000	5,280,000	– 36,000
Goods-train traffic ...	716,000	641,000	+ 75,000	14,346,000	14,564,000	– 218,000
Total receipts	1,149,000	1,297,000	– 148,000	22,470,000	22,780,000	– 310,000
L.N.E.R. (6,315 mls.)						
Passenger-train traffic	285,000	403,000	– 118,000	5,307,000	5,402,000	– 95,000
Merchandise, &c. ...	316,000	289,000	+ 27,000	6,352,000	6,403,000	– 51,000
Coal and coke ...	232,000	230,000	+ 2,000	4,931,000	4,900,000	+ 31,000
Goods-train traffic ...	548,000	519,000	+ 29,000	11,283,000	11,303,000	– 20,000
Total receipts	833,000	922,000	– 89,000	16,590,000	16,705,000	– 115,000
G.W.R. (3,737 mls.)						
Passenger-train traffic...	184,000	284,000	– 100,000	3,405,000	3,448,000	– 43,000
Merchandise, &c. ...	192,000	178,000	+ 14,000	3,675,000	3,706,000	– 31,000
Coal and coke ...	109,000	110,000	– 1,000	2,218,000	2,199,000	+ 19,000
Goods-train traffic ...	301,000	288,000	+ 13,000	5,893,000	5,905,000	– 12,000
Total receipts	485,000	572,000	– 87,000	9,298,000	9,353,000	– 55,000
S.R. (2,147 mls.)						
Passenger-train traffic...	284,000	418,000	– 134,000	5,285,000	5,286,000	– 1,000
Merchandise, &c. ...	61,000	55,000	+ 6,000	1,140,000	1,149,000	– 9,000
Coal and coke ...	28,000	26,000	+ 2,000	627,000	633,000	– 6,000
Goods-train traffic ...	89,000	81,000	+ 8,000	1,767,000	1,782,000	– 15,000
Total receipts	373,000	499,000	– 126,000	7,052,000	7,068,000	– 16,000
Liverpool Overhead ... (6½ mls.)	1,388	1,205	+ 183	25,338	22,552	+ 2,786
Mersey (4½ mls.) ...	4,047	3,897	+ 150	83,696	80,342	+ 3,354
*London Passenger Transport Board ...	573,900	444,900	+ 129,000	25,880,900	25,511,900	+ 369,000
IRELAND						
Belfast & C.D. pass. (80 mls.)	1,932	3,993	– 2,061	34,931	35,666	– 735
,, ,, goods	444	396	+ 48	8,437	9,401	– 964
,, ,, total	2,376	4,389	– 2,013	43,368	45,067	– 1,699
Great Northern pass. (543 mls.)	8,500	9,650	– 1,150	164,750	160,900	+ 3,850
,, ,, goods	8,300	9,150	– 850	164,850	181,200	– 16,350
,, ,, total	16,800	18,800	– 2,000	329,600	342,100	– 12,500
Great Southern pass. (2,076 mls.)	28,069	30,521	– 2,452	566,628	551,376	+ 15,252
,, ,, goods	39,315	41,734	– 2,419	756,679	809,715	– 53,036
,, ,, total	67,384	72,255	– 4,871	1,323,307	1,361,091	– 37,784

* 46th week (before pooling). Bus Strike, 1937. Coronation Week, 1937.

The Barbados Government Railway

The Barbados Railway, which, as recorded in an editorial note on May 6 (page 874) has been abandoned and disposed of, was begun as long ago as 1880 and completed in September, 1882. The cost of construction was £195,284, but, when the line was bought in 1916 by the Government from the Barbados Light Railway Limited, the sum paid was only £20,000, despite the fact that considerable sums had been spent on reconstruction between 1898 and 1904.



Until recently the line, which was of the 2 ft. 6 in. gauge, was 24 miles long and extended from Bridgetown to St. Andrew. Passenger service was suspended in January, 1934, pending the carrying out of a survey of the rolling stock and permanent way, and was never resumed. The four-mile section between Bathsheba and St. Andrew was closed entirely in May, 1934, but the remaining 20 miles continued in use for goods transport until the final abandonment last summer. The rolling stock consisted of 5 locomotives, 10 carriages, 93 wagons, and 2 brake vans.

British and Irish Railway Stocks and Shares

Stocks	Highest 1937	Lowest 1937	Prices May 18, 1938	Prices Rise, Fall
G.W.R.				
Cons. Ord. ...	67⅝	55¼	52	—
5% Con. Prefce. ...	127	108	115½	–1
5% Red.Pref.(1950)	113	109	109½	—
4% Deb.	113⅝	102½	109	—
4½% Deb.... ...	118	106	111½	—
4½% Deb.	124½	112	117½	—
5% Deb.	136½	122¾	129½	—
2½% Deb.... ...	76	64	67½	—
5% Rt. Charge ...	133 16	118	127½	—
5% Cons. Guar. ...	133¾	116½	127½	—
L.M.S.R.				
Ord.	36⅛	25⅜	18½	—
4% Prefce. (1923)	82½	65¾	51	–1½
4% Prefce. ...	92½	77¾	67½	–4
5% Red.Pref.(1955)	107¾	102	100½	–1½
4% Deb.	108	99¼	102	—
5% Red.Deb.(1952)	117½	111	111½*	—
4% Guar. ...	104	95⅞	98½	–½
L.N.E.R.				
5% Pref. Ord. ...	12½	6¾	5	+¼
Def. Ord.	6¼	3⅝	3	+¼
4% First Prefce.	79½	63	50½	–2
4% Second Prefce.	31½	21	17½	–1½
5% Red.Pref.(1955)	101¼	89¾	87½	–2
4% First Guar. ...	103	91⅞	94½	–1½
4% Second Guar.	97⅝	85½	84½	–1½
3% Deb.	84⅛	74	75½	–½
4% Deb.	107¼	98½	101	—
5% Red.Deb.(1947)	113½	106½	109½	—
4½% Sinking Fund Red. Deb.	110 5/16	105½	108	—
SOUTHERN				
Pref. Ord.... ...	98⅝	83½	75	–½
Def. Ord.	27⅞	16¾	19½	–¼
5% Pref.	126 16	105 13/16	112½	–1
5% Red.Pref.(1964)	118	110¼	113½	—
5% Guar. Prefce.	133¾	116¾	126½	—
5% Red.Guar.Pref. (1957)	118½	111½	115	—
4% Deb.	112	101¼	107	–½
5% Deb.	135¾	123½	127½	—
4% Red. Deb. 1962–67	113	105	108½	—
BELFAST & C.D.				
Ord.	5	4	4½	—
FORTH BRIDGE				
4% Deb.	106	99½	100½	—
4% Guar. ...	105¾	99	101½	—
G. NORTHERN (IRELAND)				
Ord.	11	5	5½	—
G. SOUTHERN (IRELAND)				
Ord.	50	21½	20	—
Prefce.	61	34	29	+½
Guar.	94¾	69½	59	—
Deb.	95	82⅛	79½	–¾
L.P.T.B.				
4½% "A" ...	123¾	110½	118½	—
5% "A" ...	135	121½	127½	—
4½% "T.F.A." ...	108¾	104	106½	—
5% "B" ...	125	114½	119½	—
"C"	99¾	75	77	—
MERSEY				
Ord.	42⅝	22	19	—
4% Perp. Deb. ...	103	96¾	100	—
3% Perp. Deb. ...	77⅝	74½	74½	—
3% Perp. Prefce.	68¾	61¼	64	—

* ex-dividend

CONTRACTS AND TENDERS

The Metropolitan-Cammell Carriage & Wagon Co. Ltd. has received an order from the Egyptian State Railways Administration for four first-class all-steel bogie coaches to be fitted with J. Stone & Company's air-conditioning equipment.

Locomotives for Chile

Messages from Santiago state that the Chilean Ministry of Industry has approved a contract with the Baldwin Locomotive Works for the supply of seven 5-ft. 6-in. gauge, Mountain type locomotives, at a cost of $500,000 U.S., for delivery in September next.

L. & W. Whitehead Limited has received a contract to the approximate value of £16,500 from the London Passenger Transport Board, for the finishings and equipment of Aldgate East station.

Peter Lind & Co. has received a contract from the London Passenger Transport Board for the erection of a new design of bus shelter at Cyprus Place, Manor Way, East Ham. The shelter is to be made entirely of concrete, and will stand on claws to steady it on the made-up ground, beneath which is some 50 ft. of Thames mud.

D. Wickham & Co. Ltd. has received an order from the Chilean State Railways for eight petrol-driven motor gang trolleys and 16 pairs of wheels and axles.

The Bhavnagar State Railway Administration has placed an order with the Tempered Spring Co. Ltd., to the inspection of Messrs. Robert White & Partners, for 50 helical springs and 300 volute springs.

Robert Stephenson & Hawthorns Limited has received an order from the Peruvian Corporation for one locomotive boiler and three locomotive inner fireboxes.

Metropolitan-Vickers Electrical Co. Ltd. has received a part contract from the G.W.R. for the supply of Cosmos electric lamps for a period of 12 months ending April 30, 1939.

Banting & Tresilian Limited has received an order from the South Indian Railway Administration, to the inspection of Messrs. Robert White & Partners, for 39 copper flanged and flat plates.

Beyer, Peacock & Co. Ltd. has received an order from the Peruvian Corporation Limited for one boiler, required for an American type eight-coupled locomotive.

Goebel A.G. has received an order from the Egyptian State Railways Administration for ticket-printing machines (Ref. No. E.S.R. 13,700, total price £1,100, delivery f.o.b. Hamburg).

The Chloride Electrical Storage Co. Ltd., has received an order from the Bombay, Baroda & Central India Railway Administration, to the inspection of Messrs. Rendel, Palmer & Tritton, for 552 lead train-lighting accumulators.

The L.M.S.R. announces that an important scheme for the modernisation of the motive power depot at Carnforth, where a £53,000 programme of station enlargement is already in progress, is to be carried out. In order to enable the servicing of engines at Carnforth to be performed more expeditiously, the motive power depot is to be remodelled and extended on the site occupied by the old Furness Railway engine shed, the depots of the former London & North Western and Midland Railways being demolished under the new scheme. Equipment of the new depot, which will be one of the most modern on the L.M.S.R. system, will include a mechanical plant for the coaling of engines, a mechanical ash-lifting plant, a 70-ft. turntable with vacuum tractor, capable of accommodating the largest engines in use, new water cranes, and a water tank of 75,000 gal. capacity. An up-to-date repair shop and stores will also be constructed, and the depot will be electrically-lighted throughout. The layout of the yard will also be remodelled.

The Great Western Railway announces the following works to be undertaken:

Barry.—A new six-ton overhead electric travelling crane and gantry is to be provided in the foundry at Barry.

Blaenrhondda tunnel.—Mining operations under this tunnel, which is some two miles in length, have caused fractures in the masonry lining of the structure and a blockage of the track drainage system. The main track drain is being relaid at a lower level, and steel ribbed arches are to be provided carrying timber laggings to support the masonry. Ordinary services will be maintained, the remedial measures being effected during week-ends.

Bristol (East Depot).—A new hump signal cabin will be provided here in order that a necessary improvement in sighting and clearances may be afforded.

Cardiff.—Cymric Buildings are to be acquired and adapted for the purpose of providing improved office accommodation for the staffs of the district goods manager, the Cardiff dock manager and the Cardiff divisional electrical assistant.

Duffryn Rhondda.—The trustees of the pit-head baths at Duffryn Rhondda will construct a footbridge over the line there, and at the same time the company will provide an alternative to crossing the railway on the level between platforms by building staircases connecting them with the footbridge.

Kidderminster.—Garage accommodation is to be provided at this place to facilitate the carrying out of repair work to road motor vehicles in the district.

Neyland.—Heavy engines now work at Neyland, and as the existing 55-ft. turntable there is in need of extensive repairs, the opportunity is being taken to replace it by a modern 65-ft. table.

Tenders are invited, receivable by June 1, by the Stores Superintendent, General Stores Department, Great Southern Railways, Inchicore, Dublin, for the supply, for six and 12-month periods, commencing July 1, of steel crank axles for locomotives; steel straight axles for locomotives, tenders, carriages and wagons; sulphuric acid; brass and copper sheet, tube and wire; bolts, nuts and washers; calcium carbide; iron signal castings; drills; grease; iron bar; cable; oil; paints; rubber rings and sleeves for vacuum brake; springs; bloom, spring, sheet, plate and bar steel; locomotive tyres; tubes; tinplate; and timber.

Tenders are invited by the South African Railways & Harbours Administration, receivable by August 22, by the Secretary to the Tender Board, Johannesburg, for the supply of a 3 ft. 6 in.-gauge dynamometer car without body.

Tenders have been invited by the Bengal-Nagpur Railway, receivable by May 27 at 132, Gresham House, Old Broad Street, London, E.C.2, for the supply of six boilers for "FTS"-class tank locomotives. Specifications and forms of tender may be obtained from the company's offices in London.

The East Indian Railway Administration is calling for tenders to be presented in India by June 24, for the supply of a number of A class locomotive saturated boilers for re-boilering of 0-6-0 "CA" class engines. Firms desirous of offering boilers of United Kingdom manufacture can obtain further details from the Department of Overseas Trade, London, S.W.1.

Exports of Railway Material from the United Kingdom in March

	Mar., 1938	Mar., 1937	Three Months Ending Mar., 1938	Three Months Ending Mar., 1937
	£	£	£	£
Locomotives, rail	78,916	74,741	329,457	361,905
Carriages and wagons	447,098	227,627	887,111	629,286
Rails, steel	143,923	51,442	344,291	249,656
Wheels, sleepers, fishplates and miscellaneous materials	164,788	108,490	484,093	279,835

Locomotive and rail exports included the following:—

	Locomotives		Rails	
	Mar., 1938	Mar., 1937	Mar., 1938	Mar., 1937
	£	£	£	£
Argentina	5,314	37,858	4,112	3,665
Union of South Africa	—*	—*	82,551	33,056
British India	11,442	24,219	16,698	8,630

* Figures not available

OFFICIAL NOTICES

Crown Agents for the Colonies

COLONIAL GOVERNMENT APPOINTMENTS

APPLICATIONS from qualified candidates are invited for the following post :—

CHIEF DRAUGHTSMAN

required for the Mechanical Engineering Department of the Nigerian Government Railway for two tours each of 12 to 24 months, with possible permanency. Salary £660-£30-£810 a year. Free passages and quarters and liberal leave on full salary. Candidates, aged 30-35, should be Associate Members of the Institution of Mechanical Engineers or possess an equivalent qualification. They must have served a full apprenticeship with a British Railway or Locomotive Firm and have had subsequent experience in designing or drawing offices; and be capable of setting out the design of a locomotive with approximate weights, a valve gear balancing, and all other detail work connected with locomotive design. Some experience in the design of coaches and wagons is an advantage.

Apply at once by letter, stating age, whether married or single and full particulars of qualifications and experience and mentioning this paper to the Crown Agents for the Colonies, 4, Millbank, London, S.W.1, quoting M/5440.

Buenos Ayres Great Southern Railway Company Limited

THE Directors of the Buenos Ayres Great Southern Railway Company Limited, hereby give notice that the Register of Debenture Stockholders of the Company will be closed from Friday, the 27th May to Saturday, the 4th June, 1938, both days inclusive.

By Order of the Board.
N. F. E. GREY,
Secretary.

River Plate House,
Finsbury Circus,
London, E.C.2.
18th May, 1938.

Buenos Ayres Western Railway Limited

THE Directors of the Buenos Ayres Western Railway Limited, hereby give notice that the Register of Debenture Stockholders of the Company will be closed from Tuesday, the 24th May to Wednesday, the 1st June, 1938, both days inclusive.

By Order of the Board.
N. F. E. GREY,
Secretary.

River Plate House,
Finsbury Circus,
London, E.C.2.
18th May, 1938.

Bengal-Nagpur Railway Company Limited

THE Directors are prepared to receive Tenders for :—

SIX BOILERS FOR F.T.S. CLASS TANK ENGINES.

Specification and Form of Tender may be obtained at the Company's Offices, 132, Gresham House, Old Broad Street, London, E.C.2, on or after 16th May, 1938.

A fee of 20s. will be charged for each copy of the Specification, which is *NOT* returnable.

Tenders must be submitted not later than Noon on Friday, 27th May, 1938.

The Directors do not bind themselves to accept the lowest or any Tender, and reserve to themselves the right of reducing or dividing the order

By Order of the Board,
T. R. WYNNE,
Managing Director.

OFFICIAL ADVERTISEMENTS

OFFICIAL ADVERTISEMENTS intended for insertion on this page should be sent in as early in the week as possible. The latest time for receiving official advertisements for this page for the current week's issue is noon on Thursday. All advertisements should be addressed to :—*The Railway Gazette*, 33, Tothill Street, Westminster, London, S.W.1.

RAILWAY AND OTHER REPORTS

Antofagasta (Chili) & Bolivia Railway Co. Ltd.—The directors propose to pay on June 15 a dividend of 3¾ per cent. on the 5 per cent. cumulative preference stock, against 2½ per cent. last year, being as to 2½ per cent. the balance of dividend payable in respect of the year 1934 and as to 1¼ per cent. on account of the year 1935. This will leave about £135,000 to be carried forward, against £136,182 brought in.

Nitrate Railways Co. Ltd.—Gross receipts for the year 1937 amounted to £159,421, against £123,723 for 1936, and net receipts improved from £4,847 to £6,662. Adding balance of dividends, interest, &c. (£34,481) and £199,942 brought forward gives a total of £241,085. Against that sum there has been charged £25,612 in respect of exchange, and the dividends of 1 per cent. on the ordinary and preferred converted ordinary shares absorb £28,980, leaving £186,493 to be carried forward. The operating expenses of £149,258, including contributions of £6,000 to renewals, although £30,382 higher than those of 1936, represented 93·63 per cent. of the gross receipts, as against 96·08 per cent. for 1936. Working expenses were also debited with £3,500 to form a reserve against possible liabilities under the law providing for Chilean staff indemnities for past services.

Devon General Omnibus & Touring Co. Ltd.—This company is jointly controlled by the British Electric Traction Co. Ltd., through its subsidiary, the National Electric Construction Co. Ltd. (50 per cent.), the Great Western Railway Company (30 per cent.), and the Southern Railway Company (20 per cent.). The profit for the year 1937, after providing for depreciation, was £71,036, against £74,320 for 1936. Adding £15,718 balance from the previous year makes a total of £86,754, against £86,218. The sum of £35,000 is again appropriated to reserve, and the directors recommend a dividend on preference shares for the year (£10,500), a dividend of 10 per cent. and a bonus of 2½ per cent. on the ordinary shares (£25,000), leaving £16,254 to be carried forward. The dividend and bonus distributions are the same as for the two previous years.

Associated Equipment Co. Ltd.—An interim dividend is to be paid at the rate of 6d. per £1 unit of stock, free of tax. The interim payment last year was 5d. The directors state that the increase in the rate by 1d. is not to be taken as an indication of their intentions with regard to the final dividend upon which decision will be taken only after consideration of the accounts in November next. The present increase from 5d. to 6d. is to be regarded as for the convenience of stockholders only.

Kitchen & Wade Limited.—The directors recommend a final dividend of 12½ per cent. for the year ended March 21, together with a cash bonus of 20 per cent. With the interim dividend of 12½ per cent. already paid, this makes a total distribution of 45 per cent. for the year (compared with 25 per cent. for the previous period). The trading profit for the year amounted to £73,079, against £48,319, and the net balance, after depreciation, &c., is £71,255. The directors have set aside £21,655 as full provision for income-tax and N.D.C. Goodwill is to be written down by a further £5,000 and £6,960 is to be carried forward (against £3,531).

Monk Bridge Iron & Steel Co. Ltd.—The accounts for 1937 show a profit of £15,032 (before charging depreciation), compared with £6,332 in 1936. The reconstruction scheme sanctioned by the Courts on April 27, 1937, came into full operation on July 1, 1937. After charging depreciation and all other expenses, profits for the past year amounted to £11,487, which has been added to the £6,332 brought in from 1936, making £17,819 to be carried forward. The directors do not recommend the payment of a dividend.

Stream-Line Filters Limited.—An increase in profits to £23,805 is shown in the accounts of Stream-Line Filters Limited for 1937. The final dividend is 12½ per cent., making 20 per cent. for the whole year. A sum of £2,500 was allocated to tax reserves and £2,000 to general reserves. Subject to additional remuneration to the directors, the balance carried forward is £3,000.

Johnson & Phillips Limited.—Net earnings for the year 1937, after taxation, amounted to £126,024. The directors again place £5,000 to research and development account, and £10,000 to dividend equalisation account. They also add £20,000 to special reserve for contingencies. The final dividend recommended is 7½ per cent., making 12½ per cent. for the year 1937, against 10 per cent. for 1936.

Scammell Lorries Limited.—Gross profit for the year 1937 was £113,751, against £84,303 for 1936, and the net profit, after providing £3,500 for tax and N.D.C., has risen from £10,323 to £33,486. This is equivalent to a little over 28 per cent. on the share capital of £157,547, compared with about 8½ per cent. earned in 1936. It is proposed to place £20,000 to reserve and to carry forward £16,903 compared with £3,417 brought in. The last dividend payment was 20 per cent. for 1928-29.

Forthcoming Meetings

May 25 (*Wed.*).—**Nitrate Railways Co. Ltd.** (Ordinary General), Winchester House, Old Broad Street, E.C.2, at 11.30 a.m.

May 26 (*Thurs.*).—**Companhia do Caminho de Ferro de Benguela** (Annual General), Lisbon, Largo do Quintela, 3, at 11 a.m.

XUM

Railway Share Market

General conditions in the stock and share markets have been dull and reactionary owing to the very small amount of business in evidence in all sections of the Stock Exchange. Consequently, there has been a fairly general movement to lower prices, despite the absence of selling pressure. Home railway stocks have been further depressed as a result of the poor traffic return for the past week and the prospect of fresh wages claims. The traffics compare with the Coronation period and pre-Whitsun week of last year, but the aggregate decrease again exceeded market estimates. Nevertheless, before long the comparison with last year's receipts will be on a more normal basis. It appears, however, that the half-yearly statements of the railways can hardly be expected to be encouraging, although the disposition is to assume that, if better traffics are shown next month, there will be a reasonable possibility of interim payments on the junior stocks being the same as last year, assuming the outlook for the second half of the year is viewed as not unsatisfactory.

Southern deferred was again the least reactionary of the junior securities, but the price is fractionally lower at around 19¼ in sympathy with the general trend. Owing to the fact that some three-quarters of the company's revenue arises from passenger traffic and the benefits that this may derive from the lower level of the franc and from "holidays with pay," the outlook continues to be regarded in the market as reasonably promising. Nevertheless the preferred stock has now gone back to 75, although there seems little doubt that its full 5 per cent. dividend will again be covered by a satisfactory margin. L.M.S.R. ordinary has reacted to 18 under the influence of the large traffic decrease of £148,000 for the past week, while the 4 per cent. preference is now 67½ and the 4 per cent. 1923 preference is lower at 51. Subsequently Great Western had a rather steadier appearance at 51 on the view that there seem grounds for budgeting for a dividend of at least 3 per cent. for the current year, as the directors might, if necessary, draw on reserves to prevent a distribution below this rate. L.N.E.R. second preference reacted to 17½ and the first preference to 50½. Prior charge and debenture stocks were again steady. Elsewhere, London Transport "C" remained around 77.

Argentine railway securities reflected the surrounding trend to lower prices. Nevertheless Cordoba Central stocks, particularly the first debentures around 41, were active at better prices on expectations that next month the Argentine Congress will pass the necessary legislation to acquire the line. Market estimates of the value of the various stocks on the basis of the provisional agreement vary a good deal. In other directions Nitrate Rails responded to the results, as did Antofagasta ordinary and preference stocks on the preliminary statement of improved receipts.

Traffic Table of Overseas and Foreign Railways Publishing Weekly Returns

	Railways	Miles open 1937-38	Week Ending	Traffics for Week: Total this year	Traffics for Week: Inc. or Dec. compared with 1937	No. of Weeks	Aggregate Traffics to Date: Totals: This Year	Aggregate Traffics to Date: Totals: Last Year	Aggregate Traffics to Date: Increase or Decrease	Shares or Stock	Prices: Highest 1937	Prices: Lowest 1937	Prices: May 18, 1938	Yield % (See Note)
				£	£		£	£	£					
South & Central America	Antofagasta (Chili) & Bolivia	834	15.5.38	16,630	+ 2,090	20	328,010	340,480	— 12,470	Ord. Stk.	29	10¼	10	Nil
	Argentine North Eastern	753	14.5.38	9,733	— 497	46	414,125	401,518	+ 12,607	"	19¼	6	3	Nil
	Argentine Transandine	—	—	—	—	—	—	—	—	A. Deb.	93½	60	75	5
	Bolivar	174	Apr., 1938	3,700	— 2,300	18	15,600	23,200	— 7,600	6 p.c. Deb.	9½	5	8½	Nil
	Brazil	—	—	—	—	—	—	—	—	Bonds.	17	9	5½	9116
	Buenos Ayres & Pacific	2,806	14.5.38	88,772	— 27,357	46	4,068,740	4,384,844	— 316,104	Ord. Stk.	17⅛	5½	5	Nil
	Buenos Ayres Central	190	30.4.38	$91,000	— $9,100	44	$5,059,800	$6,148,700	— $1,088,900	Mt. Deb.	41½	18	11½	Nil
	Buenos Ayres Gt. Southern	5,084	14.5.38	127,605	— 4,095	46	6,890,507	6,914,596	— 24,089	Ord. Stk.	33¾	13½	11	Nil
	Buenos Ayres Western	1,930	14.5.38	43,921	— 7,134	46	2,088,400	2,308,763	— 220,363	"	31¾	11¼	7½	Nil
	Central Argentine	3,700	14.5.38	104,414	— 39,286	46	5,532,510	7,071,804	— 1,539,294	"	34¼	10¾	8	Nil
	Do.	—	—	—	—	—	—	—	—	Did.	20½	4½	4	Nil
	Cent. Uruguay of M. Video	980	7.5.38	19,160	+ 326	45	818,542	797,878	+ 20,664	Ord. Stk.	6732	2	2½	Nil
	Cordoba Central	1,218	—	—	—	—	—	—	—	Ord. Inc.	6¼	1½	2½	Nil
	Costa Rica	188	Mar., 1938	36,015	+ 6,498	39	233,338	171,651	+ 61,687	Stk.	38	27	26½	7916
	Dorada	70	Apr., 1938	14,100	— 300	18	60,900	62,400	— 1,500	1 Mt. Db.	107	106	106	55/8
	Entre Rios	810	14.5.38	13,424	+ 1,129	46	653,788	588,260	+ 65,528	Ord. Stk.	19716	6	5	Nil
	Great Western of Brazil	1,092	14.5.38	5,200	— 900	20	147,600	154,900	— 7,300	Ord. Sh.	¾	⅛	¼	Nil
	International of Cl. Amer.	794	Feb., 1938	$477,297	— $42,015	9	$964,439	$1,033,251	— $68,812	—	—	—	—	—
	Interoceanic of Mexico	—	—	—	—	—	—	—	—	1st Pref.	2/-	1/-	½	Nil
	La Guaira & Caracas	22¾	Apr., 1938	5,055	— 1,150	18	19,730	23,080	— 3,350	Stk.	8½	6	8½	Nil
	Leopoldina	1,918	14.5.38	17,068	— 5,181	20	359,022	428,964	— 69,942	Ord. Stk.	9¼	3	2	Nil
	Mexican	483	14.5.38	$214,600	— $92,300	20	$5,870,000	$5,991,800	— $121,800	"	1½	¼	5/16	Nil
	Midland of Uruguay	319	Apr., 1938	9,614	+ 888	44	95,899	87,736	+ 8,163	"	1⅞	½	½	Nil
	Nitrate	386	15.5.38	5,896	— 498	20	69,025	70,975	— 1,950	Ord. Sh.	3116	2	2	Nil
	Paraguay Central	274	14.5.38	$4,433,000	— $38,000	46	$144,359,000	$134,865,000	+$9,494,000	Pr. Li. Stk.	84	79¼	65	9¼
	Peruvian Corporation	1,059	Apr., 1938	70,108	— 26,974	44	810,864	827,889	— 17,025	Pref.	14¾	4½	3	Nil
	Salvador	100	7.5.38	¢13,500	— ¢14,750	45	¢904,075	¢1,089,458	— ¢185,383	Pr. Li. Db.	23½	21½	22½	Nil
	San Paulo	153¼	8.5.38	36,575	+ 4,540	19	553,971	575,667	— 21,696	Ord. Stk.	98½	56	37½	10116
	Taltal	160	Apr., 1938	3,030	+ 230	44	34,985	34,610	+ 375	Ord. Sh.	1716	1116	¾	13516
	United of Havana	1,353	14.5.38	20,258	— 9,592	46	1,148,263	1,264,135	— 115,872	Ord. Stk.	55/8	3132	2½	Nil
	Uruguay Northern	73	Apr., 1938	1,002	+ 161	44	9,462	10,134	— 672	Deb. Stk.	10	2	2	Nil
Canada	Canadian National	23,781	7.5.38	625,875	— 167,545	19	11,655,403	13,200,138	— 1,544,735	—	—	—	—	—
	Canadian Northern	—	—	—	—	—	—	—	— 4 p.c.	Perp. Dbs.	77	62½	62½	6⅝
	Grand Trunk	—	—	—	—	—	—	—		4 p.c. Gar.	1017/8	94½	102½	37/8
	Canadian Pacific	17,186	14.5.38	470,400	— 77,000	20	9,065,600	9,796,200	— 730,600	Ord. Stk.	18	7¼	6	Nil
India†	Assam Bengal	1,329	30.4.38	38,100	— 412	4	108,630	108,568	+ 62	Ord. Stk.	86	73½	79	3116
	Barsi Light	202	30.4.38	3,495	— 285	4	13,965	13,342	+ 623	Ord. Sh.	66½	46	60	8516
	Bengal & North Western	2,107	30.4.38	88,161	— 8,414	4	265,695	283,647	— 17,952	Ord. Stk.	317	301	297½	6
	Bengal Dooars & Extension	161	30.4.38	3,583	— 84	4	10,964	10,086	+ 878	"	100	84	85½	7
	Bengal-Nagpur	3,268	30.4.38	206,175	— 6,982	4	600,600	631,075	— 30,475	"	101	89	91½	43/8
	Bombay, Baroda & Cl. India	3,072	10.5.38	281,850	+ 2,100	6	1,121,475	1,161,900	— 40,425	"	113	110½	110½	5716
	Madras & Southern Mahratta	2,967	30.4.38	164,025	— 2,391	4	489,675	488,987	+ 688	"	110	105	107½	8⅝
	Rohilkund & Kumaon	571	30.4.38	18,006	— 1,542	4	54,935	60,651	— 5,716	"	314	302	303½	5116
	South Indian	2,531¾	30.4.38	115,445	— 6,732	4	347,236	357,954	— 10,718	"	103½	99½	102½	45/8
Various	Beira-Umtali	204	Mar., 1938	84,833	— 656	26	528,588	418,485	+ 110,103	—	—	—	—	—
	Egyptian Delta	620	10.4.38	5,800	— 131	2	5,800	5,931	— 131	Prf. Sh.	31/-	¾	¼	Nil
	Kenya & Uganda	1,625	Mar., 1938	279,680	— 4,212	13	802,157	852,979	— 50,822	—	—	—	—	—
	Manila	—	—	—	—	—	—	—	—	B. Deb	48⅛	43½	45½	7116
	Midland of W. Australia	277	Mar., 1938	17,966	+ 4,558	39	131,005	119,597	+ 11,408	Inc. Deb.	98	93½	93½	4¼
	Nigerian	1,900	31.3.38	67,627	— 25,820	52	2,825,153	2,661,250	+ 163,903	—	—	—	—	—
	Rhodesia	2,442	Mar., 1938	410,494	+ 564	26	2,512,028	2,109,905	+ 402,123	—	—	—	—	—
	South Africa	13,263	7.5.38	622,053	+ 34,838	6	3,233,359	3,283,710	— 50,351	—	—	—	—	—
	Victoria	4,774	Feb., 1938	794,106	— 61,204	35	6,392,472	6,705,843	— 313,371	—	—	—	—	—

NOTE.—Yields are based on the approximate current prices and are within a fraction of ⅛.

† Receipts are calculated @ 1s. 6d. to the rupee. § ex dividend.

The variation in Sterling value of the Argentine paper peso has lately been so great that the method of converting the Sterling weekly receipts at the par rate of exchange has proved misleading, the amount being overestimated. The statements are based on the current rates of exchange and not on the par value.